Water Chemistry Data from Lake 223 of the Experimental Lakes Area, Northwestern Ontario, 1974 to 1982

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by

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ABSTRACT

Linsey, G.A., and J. Braund. 1984. Water chemistry data from Lake 223 of the Experimental Lakes Area, northwestern Ontario, 1974 to 1982. Can. Data Rep. Fish. Aquat. Sci. 487: iv + 121 p.

Water samples taken from Lake 223 of the Experimental Lakes Area were analyzed for up to 28 chemical and physical parameters during the period from 1974 to 1982. Depth profiles for each parameter were determined approximately monthly while epilimnion, inflow and outflow samples were analyzed weekly during the open water season. Beginning in 1976, profiles were obtained monthly under winter ice cover.

Key words: Water chemistry; chemical composition; lake acidification; limnology.

RESUME

Linsey, G.A., and J. Braund. 1984. Water chemistry data from Lake 223 of the Experimental Lakes Area, northwestern Ontario, 1974 to 1982. Can. Data Rep. Fish. Aquat. Sci. 487: iv + 121 p.

De 1974 à 1982, on a analysé des échantillons d'eau prélevés au lac n° 223 de la Région des Lacs Expérimentaux en fonction de 28 paramètres chimiques et physiques. Durant la période où les lacs sont libres de glace, on a établi environ une fois par mois des profils de profondeur pour chacun des paramètres, alors qu'on a analysé des échantillons de l'épilimnion et de l'eau à l'entrée et à la sortie du lac toutes les semaines. C'est à partir de 1976 que l'on a dessiné des profils mensuels pour la période de gel.

Mots-clés: hydrochimie; composition chimique; acidification des lacs; limnologie.

INTRODUCTION

Since its inception in 1968 (Johnson and Vallentyne 1971), the Experimental Lakes Area of northwestern Ontario has provided sites where a host of unique aquatic ecosystem experiments could be carried out. These have included whole lake fertilization and acidification projects, some of which have been ongoing for periods of many years. As well as experimental manipulation, the drainage basins in the area have been subjected to natural perturbations in the form of forest fires and a windstorm affording the opportunity to study their effects on the chemistry and hydrology of otherwise undisturbed watersheds (Schindler et al. 1980a).

The establishment of on site analytical laboratory facilities at the beginning of the project permitted chemical analysis for unstable substances such as nitrate, ammonia, phosphorus, ferrous iron, sulfide and dissolved inorganic carbon to be carried out within hours of sample collection and on a year-round basis. As a result, extensive water chemistry data have been compiled for a number of ELA lakes for periods of up to 15 years. Summaries of early portions of these data have been presented by Armstrong and Schindler (1971) and Prokopowich (1979). As well, data appear for a few chemical species for selected lakes in numerous individual publications (for example: Schindler 1971; Schindler et al. 1973, 1980a, b, and Hesslein 1980 to mention only a few).

The purpose of this series of reports is to document all of the water chemistry data routinely collected over the years for those ELA lakes which have undergone whole lake manipulation experiments or, as in the case of Lake 239, which have been subjected to only natural perturbations.

ELA Lake 223 is the site for an ongoing acidification experiment designed to monitor the chemical and biological responses of a lake to controlled amounts of sulfuric acid deposition to its surface water (Schindler et al. 1980b; Schindler and Turner 1982; Schindler et al., personal communication). Acid additions to the lake began in 1976 following two years of background monitoring. Details of amounts and methods of acid addition are provided by Cruikshank (1984).

This paper contains the chemistry data measured for Lake 223 from 1974 to 1982 inclusive (Appendices 1 to 9).

METHODS

Details of the analytical methods employed up to the end of 1976 have been outlined in chronological order by Prokopowich (1979). The same format has been adopted to expand this account to include techniques in use to the end of 1982 (Tables 1 and 2).

Samples labelled "EPI" (epilimnion) are usually obtained at a depth of 1 m from the lake's surface. Occasionally, shallower samples have been substituted but caution has been exercised to exclude any surface film or debris. Water obtained from inflows to or outflows from the lake are labelled IF and OF respectively. Dates are expressed as day numbers on the Julian calendar. The appendices have been arranged to contain the water chemistry data for individual calendar years.

Temperature profiles measured at much smaller depth intervals than those reported here and corresponding to the dates of chemistry sampling are presented by Cruikshank (1984).

ACKNOWLEDGMENTS

Numerous individuals have contributed to the production of this report. In particular, M.A. Turner and K. Prohaska were instrumental in compiling and editing these data. J. Prokopowich supervised the ELA analytical laboratory from 1971 to 1980 and M. Stainton has provided analytical support at the Freshwater Institute. Thanks are extended to those who reviewed this manuscript and provided constructive suggestions.

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The numbers in brackets correspond to the reference numbers from Table 2.

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Table 1. Analytical methods employed from 1977 to 1982. The numbers are keyed to the brief method descriptions in Table 2 of this paper and in Prokopowich (1979).

Analysis	1977	1978	1979	1980	1981	1982
NH_3-N	1	1	1	1	1,1a	1a
NO_2-N	2	2	2	2	2,2a	2a
NO_3-N	3	3	3	3	3,3a	3a
TDN	4c	4c	4c	4c	4c	4c
Susp N	5b	5b	5b	5b	5b	5b
TDP	7a	7a	7a	7a	7a	7a
Susp P	8	8	8	8	8	8
DIC	9d	9d	9d	9d,9e	9e	9e
DOC	10b	10b	10b	10b	10b	10b
Susp C	11	11	11	11	11	11
Cl	13c	13c	13c	13c	13c	13c
SO_4	14b	14b	14b	14b	14b	14b
H_2S-S	15	15	15	15	15	15
SRSi	16	16	16	16	16	16
Na,K,Mg,Ca,Mn,Fe	17	17	17	17	17	17
Fe^{2+}, Fe^{3+}	19	19	19	19	19	19
pH	20	20	20	20,20a	20a	20a
Temperature	21	21	21	21	21	21
Conductivity @25°C	22	22	22	22	22	22
Oxygen	23	23	23	23	23	23
Chlorophyll-*a*	24b	24b	24b	24b, 24c	24c	24c
Colour	25	25	25	25	25	25
Alkalinity	26a	26a	26a	26a,26b	26b	26b

Table 2. A brief description of the analytical methods used from 1977 to 1982 which are not included in Prokopowich (1979).

Analysis	Method Number (from Table 1)	Description	Reference numbers
NH_3-N	1a	- automated colourimetric indophenol blue method with nitroprusside catalyst - filtered samples - started July, 1981	16
NO_2-N	2a	- automated colourimetric azo dye method - filtered samples - started July, 1981	15
NO_3-N	3a	- as in 2a but after reduction to nitrite with a copper-cadmium couple	15
DIC	9e	- acidification and on-stream gas stripping followed by infrared absorption analysis - started in July, 1980	5, 14
pH	20a	- sample and electrode in closed container to prevent atmospheric CO_2 exchange - unstirred - started July, 1980	3
Chlorophyll-*a*	24c	- static (20 hour) methanol extraction of samples on glass-fibre filters followed by fluorometry - uncorrected for phaeophytin - started in May, 1980	M.P. Stainton (unpublished)
Alkalinity	26a	- manual potentiometric acid titration using a Gran extrapolation to determine acid equivalence point	4, 5
	26b	- automated potentiometric acid titration using the first derivative to determine the equivalence point - Gran calculations performed on occasional samples - known amounts of bicarbonate added to low alkalinity samples prior to titration allowing an estimate of "negative" alkalinity - started May, 1980	

Appendix 1

1974 Water chemistry data

LAKE 223 Temp (C) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	11.40	16.40	23.40	20.30	14.47	7.90	4.90
3	8.91	16.38	23.30	20.22	14.47	7.90	4.92
5	6.55	9.55	14.38	19.70	14.47	7.90	4.92
7	5.82	7.25	8.52	10.51	14.30	7.90	4.92
9	5.41	5.95	6.80	7.60	8.20	7.90	4.92
11	5.01	5.61	6.05	6.20	6.50	7.90	4.94
12	5.00						
13		5.40	5.62	5.70	6.00	7.89	4.98

LAKE 223 Cond (uS/cm) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	21	22	21	21	23	23	24
3	21	22	21	22	23	23	23
5	19	22	21	22	26	23	23
7	21	23	23	21	27	23	23
9	21	23	22	23	27	23	23
11	21	24	23	23	26	25	22
12	23						
13		26	30	54	62	23	22

LAKE 223 pH 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	6.70	6.62	6.78	6.69	6.90	6.67	6.84
3	6.30	6.64	6.85	6.78	6.97	6.76	6.84
5	6.22	6.48	6.86	6.75	6.87	6.72	6.84
7	6.20	6.37	6.72	6.70	6.91	6.75	6.91
9	6.19	6.24	6.33	6.31	6.48	6.78	6.93
11	6.16	6.05	6.03	5.91	6.14	6.78	6.93
12	6.10						
13		6.03	6.05	6.32	6.75	6.79	6.90

LAKE 223 O2 (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	10.60	9.26	8.00	8.70	9.10	9.00	10.70
3	10.51	9.00	8.01	8.70	9.31	8.95	10.60
5	10.19	11.70	11.50	8.70	9.30	9.10	10.52
7	9.23	10.69	12.01	12.30	9.30	9.02	10.51
9	8.35	8.09	8.82	10.76	7.10	8.80	10.75
11	7.89	4.68	3.30	.40	.01	9.22	10.60
12	5.01						
13		1.14	.49	.01	.01	9.02	11.09

LAKE 223 NH3-N (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	5	18	21	5	33	6	23
3	8	18	18	3	12	14	19
5	8	36	17	2	8	15	22
7	11	24	24	3	7	17	16
9	16	26	20	3	6	9	12
11	37	51	49	12	53	12	18
12	142						
13		201	329	826	882	12	18

LAKE 223 NO3-N (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	50	1	1	2	1	8	9
3	48	1	2	1	1	4	8
5	56	1	2	1	1	3	8
7	59	1	1	1	1	4	7
9	63	34	2	1	1	3	5
11	68	56	37	12	5	3	6
12	61						
13		16	15	22	11	3	8

LAKE 223 Susp N (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	52	73	77	83	66	69	64
3	48	67	84	55	73	55	86
5	76	113	91	80	69	76	64
7	61	107	147	90	76	73	72
9	45	111	182	280	145	66	68
11	74	95	133	138	384	73	57
12	87						
13		218	294	564	426	97	64

LAKE 223 TDP (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	4	3	3	1	2	3	4
3	3	4	3	2	2	3	3
5	3	3	3	2	2	4	3
7	6	4	3	2	2	3	4
9	4	4	3	3	3	4	4
11	4	4	4	4	3	3	4
12	5						
13		6	6	9	7	3	4

LAKE 223 Susp P (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	6	5	4	2	3	6	4
3	4	3	7	3	3	4	4
5	7	4	6	3	3	4	5
7	8	6	16	6	3	3	4
9	5	6	14	22	15	4	4
11	5	8	10	15	39	4	4
12	9						
13		27	41	83	56	5	4

LAKE 223 DIC (uM/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	146	119	118	120	137	188	149
3	154	122	108	117	138	167	158
5	171	164	115	123	125	190	167
7	196	215	139	129	143	147	159
9	224	257	234	191	286	169	149
11	237	377	376	486	550	168	169
12	342						
13		471	560	855	944	164	163

LAKE 223 DOC (uM/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	413	439	437		314	317	356
3	393	430	465	313	285	254	232
5	387	333	427	318	255	309	263
7	388	410	404	283	269	239	258
9	384	383	401	290	253	265	239
11		399	130	325	240	265	277
12	365						
13		384	468	439	515	237	232

LAKE 223 Susp C (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	700	700	470	520	510	700	580
3	580	680	510	540	610	620	580
5	640	850	620	520	580	700	700
7	690	1050	1140	710	560	790	540
9	560	1100	1550	2540	1250	570	570
11	520	680	1260	1040	2160	700	550
12	1020						
13		1700	1840	3040	2280	930	590

LAKE 223 CH4-C (uM/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	1	1	1	1	1	3	
3	1	1	1	1	1	4	
5	1	1	1	1	1	4	
7	1	1	1	1	1	3	
9	1	1	1	1	1	3	
11	1	1	1	1	9	3	
12	8						
13		1	45	203	292	3	

LAKE 223 Cl (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	.6		.6	.4	.8	.8	.6
3	.8		.4	.4	.6	.8	.6
5	.6		.4	.4	.6	.6	.6
7	.6		.8	.4	.6	.6	.6
9	.6		.6	.4	.8	.8	.6
11	.6		.6	.4	.6	1.0	.6
12	.6						
13			.6	.4	.8	1.0	.4

LAKE 223 SO4 (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	3.4		3.6	3.8	3.6	3.0	3.4
3	3.6		3.4	4.2	3.4	3.2	3.4
5	3.4		3.4	4.0	3.4	3.2	3.4
7	3.6		3.8	4.0	3.4	3.2	3.4
9	3.6		3.2	3.4	3.8	3.0	3.4
11	3.4		3.0	3.4	2.8	3.0	3.4
12	3.4						
13			3.0	2.0	1.2	3.0	3.4

LAKE 223 Na (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	1.05	.91	1.00	.88	.90	1.01	.93
3	1.12	.90	.94	.88	.86	.97	.91
5	1.08	.89	.90	.95	.87	.96	.93
7	1.03	.92	.89	.98	.88	.98	.91
9	1.04	.95	.88	1.10	.89	1.00	.90
11	1.04	.91	.92	.95	.93	1.15	.92
12	1.10						
13		.94	.97	1.10	.94	1.12	.95

LAKE 223 K (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	.39	.29	.36	.41	.34	.42	.29
3	.39	.28	.37	.41	.31	.42	.28
5	.35	.29	.35	.41	.34	.42	.28
7	.35	.31	.36	.40	.31	.42	.28
9	.34	.33	.36	.43	.34	.43	.27
11	.34	.31	.37	.42	.36	.39	.29
12	.38						
13		.34	.45	.55	.41	.41	.29

LAKE 223 Ca (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	2.00	2.09	2.30	2.28	2.36	2.23	2.32
3	2.05	2.08	2.33	2.27	2.34	2.22	2.29
5	2.04	2.15	2.36	2.26	2.34	2.22	2.30
7	1.97	2.23	2.41	2.31	2.33	2.22	2.31
9	1.99	2.25	2.51	2.43	2.56	2.22	2.32
11	2.04	2.30	2.54	2.35	2.41	2.23	2.33
12	2.35						
13		2.32	3.03	4.10	4.83	2.23	2.32

LAKE 223 Mg (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	.54	.51	.64	.60	.58	.58	.59
3	.55	.51	.63	.59	.57	.57	.57
5	.55	.51	.62	.59	.57	.57	.57
7	.53	.53	.64	.58	.57	.57	.58
9	.53	.54	.66	.61	.60	.57	.58
11	.53	.54	.66	.63	.65	.57	.58
12	.58						
13		.55	.67	.66	.64	.58	.58

LAKE 223 Fe (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	.03	.01	.07	.03	.03	.02	.03
3	.03	.01	.06	.04	.03	.02	.03
5	.01	.01	.06	.04	.03	.03	.02
7	.02	.01	.07	.05	.03	.03	.03
9	.05	.01	.09	.06	.08	.02	.03
11	.10	.08	.15	.19	.64	.02	.03
12	.31						
13		.27	2.20	7.69	8.94	.05	.03

LAKE 223 SRSi (mg/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	1.400	1.310	1.370	1.260	1.120	1.190	1.220
3	1.430	1.310	1.360	1.260	1.120	1.190	1.230
5	1.400	1.280	1.310	1.260	1.120	1.200	1.230
7	1.440	1.350	1.190	.810	1.120	1.250	1.240
9	1.510	1.460	1.280	.631	.689	1.200	1.220
11	1.260	1.690	1.730	1.830	2.030	1.190	1.240
12	1.790						
13		1.900	2.180	2.770	2.880	1.210	1.230

LAKE 223 Chl-a (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	1.9	1.8	1.8	1.6	1.7	2.2	2.4
3	2.3	1.7	1.5	1.4	1.9	3.1	3.0
5	4.2	3.6	2.2	1.6	1.4	3.1	2.5
7	6.4	7.4	5.0	4.9	2.7	2.8	2.1
9	4.0	8.2	13.8	47.0	20.5	3.2	2.5
11	3.6	5.8	4.9	14.0	53.4	1.9	2.0
12	2.8						
13		8.1	16.1	23.8	24.3	2.6	1.3

LAKE 223 TDN (ug/L) 1974

DEPTH(m)	DAY #						
	142	170	198	226	254	282	310
EPI	214	226	215	199	207	251	271
3	207	240	223	209	191	232	277
5	237	212	215	195	185	185	271
7	211	212	212	202	198	204	252
9	248	232	207	195	188	208	252
11	259	340	279	221	226	222	252
12	331						
13		450	654	1112	1095	227	252

Appendix 2

1975 Water chemistry data

LAKE 223 Temp (C) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		22.78	21.90	18.96	12.65	9.94
2	16.31					
5	10.35					
8	6.21					
10	5.20					
12	4.76					

LAKE 223 Cond (uS/cm) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		19		21	23	22
2	20					
5	20					
8	21					
10	22					
12	24					

LAKE 223 pH 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		6.68		6.61	6.98	6.49
2	7.01					
5	6.78					
8	6.51					
10	6.37					
12	6.23					

LAKE 223 NH3-N (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		4	2	4	19	9
2	7					
5	6					
8	8					
10	9					
12	155					

LAKE 223 NO3-N (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		3	1	1	8	1
2	1					
5	4					
8	35					
10	60					
12	48					

LAKE 223 TDN (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		215	156	177	245	219
2	181					
5	172					
8	240					
10	253					
12	411					

LAKE 223 Susp N (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		34	30	33	70	79
2	59					
5	93					
8	114					
10	119					
12	128					

LAKE 223 TDP (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		3	5	3	3	3
2	4					
5	4					
8	6					
10	6					
12	6					

LAKE 223 Susp P (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		4	2	2	3	3
2	4					
5	5					
8	7					
10	7					
12	16					

LAKE 223 DIC (uM/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		113		101	97	132
2	97					
5	138					
8	204					
10	281					
12	410					

LAKE 223 DOC (uM/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		392	422	357	401	384
2	451					
5	382					
8	393					
10	410					
12	396					

LAKE 223 Susp C (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		540	850	530	640	795
2	590					
5	710					
8	930					
10	920					
12	1070					

LAKE 223 Cl (mg/L) 1975

DEPTH(m) DAY #

	153	181	209	237	265	293
EPI		.4	.6	.6	.6	.8
2	1.2					
5	.6					
8	.6					
10	.4					
12	.6					

LAKE 223 SO4 (mg/L) 1975

DEPTH(m) DAY #

	153	181	209	237	265	293
EPI		3.6	3.4	2.6	3.0	3.2
2	3.4					
5	3.2					
8	3.2					
10	3.2					
12	2.8					

LAKE 223 Mn (mg/L) 1975

DEPTH(m) DAY #

	153	181	209	237	265	293
EPI		.93	.87	.70	.92	.83
2	.88					
5	.89					
8	.91					
10	.92					
12	.96					

LAKE 223 K (mg/L) 1975

DEPTH(m) DAY #

	153	181	209	237	265	293
EPI		.33	.31	.57	.35	.35
2	.22					
5	.22					
8	.24					
10	.25					
12	.27					

LAKE 223 Ca (mg/L) 1975

DEPTH(m) DAY #

	153	181	209	237	265	293
EPI		2.12	1.90	2.32	2.30	2.35
2	2.12					
5	2.25					
8	2.39					
10	2.40					
12	2.66					

LAKE 223 Mg (mg/L) 1975

DEPTH(m) DAY #

	153	181	209	237	265	293
EPI		.58	.60	.50	.67	.65
2	.52					
5	.53					
8	.55					
10	.55					
12	.58					

LAKE 223 Fe (mg/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		.01	.10	.11	.04	.04
2	.01					
5	.02					
8	.05					
10	.10					
12	.25					

LAKE 223 SRSi (mg/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		1.330	1.250	1.320	1.230	1.320
2	1.310					
5	1.350					
8	1.550					
10	1.710					
12	2.200					

LAKE 223 Chl-a (ug/L) 1975

DEPTH(m)	DAY #					
	153	181	209	237	265	293
EPI		1.1	1.0	1.6	2.1	2.5
2	2.3					
5	4.3					
8	9.3					
10	9.6					
12	6.4					

Appendix 3

1976 Water chemistry data

LAKE 223 Temp (C) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI			6.16		10.90		19.30	
4			6.11				15.57	
8			6.06				7.82	
12			5.36				6.64	
14							6.51	
OF			6.80	7.30	11.90	15.80	22.18	20.00
IF			6.50	6.10	11.50	15.80	23.15	

DEPTH(m)	DAY #							
	166	173	180	187	194	201	208	215
EPI	19.93		19.56		22.20		21.37	
4			19.40				21.83	
8			9.31				11.42	
12			6.89				7.47	
14								
OF	16.92	19.90	20.98	24.00	21.24	22.80	21.02	19.80
IF	15.71	18.30	19.03	23.20	16.85			

DEPTH(m)	DAY #							
	222	229	236	243	250	257	264	271
EPI	21.37		22.19		17.90		16.75	
4			22.04				16.77	
8			13.23				16.70	
12			7.89				8.09	
14			7.45				7.63	
OF	20.01	16.80	18.20	14.80	14.72	14.40	10.71	6.20
IF								

DEPTH(m)	DAY #			
	278	285	292	349
EPI	13.01		8.23	
4			8.28	
8			8.28	
12			8.26	
14			8.24	
OF	10.57	7.50	4.10	
IF				

LAKE 223 Cond (uS/cm) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	27	27	22				22	
4		24	22				22	
8		24	22				22	
12		27	23				23	
14		126					24	
OF		26	22	22	22	22	23	25
IF			18	19	19	21	23	

DEPTH(m)	DAY #							
	166	173	180	187	194	201	208	215
EPI			22		22		25	
4			22				24	
8			21				23	
12			24				26	
14								
OF	26	23	22	23	22	24	25	26
IF	25	27	19	20	21			

DEPTH(m)	DAY #							
	222	229	236	243	250	257	264	271
EPI	26		25		25		25	
4			25				25	
8			22				25	
12			26				37	
14			59				75	
OF		27	27	27	29	30	28	30
IF								

DEPTH(m)	DAY #			
	278	285	292	349
EPI	25		27	27
4			27	26
8			27	27
12			26	30
14			26	57
OF	32	32	32	
IF				

LAKE 223 pH 1976

DEPTH(m) DAY #

	008	097	124	132	138	145	152	159
EPI	6.61	6.68	6.41				6.49	
4		6.60	6.51				6.50	
8		6.34	6.47				6.49	
12		6.22	6.32				6.29	
14		6.68					6.21	
OF		6.75	6.44	6.60	6.42	6.58	6.40	6.39
IF			6.46	6.48	6.35	6.51	6.37	

	166	173	180	187	194	201	208	215
EPI			6.45		6.79		6.51	
4			6.49				6.58	
8			6.63				6.73	
12			6.17				6.16	
14								
OF	6.30	6.50	6.56	6.38	6.69	6.32	6.54	6.23
IF	6.24	6.32	6.41	6.34	6.48			

	222	229	236	243	250	257	264	271
EPI	6.50		6.65		6.61		6.41	
4			6.61				6.43	
8			6.77				6.44	
12			6.20				6.31	
14			6.51				6.61	
OF		6.22	6.35	6.27	6.30	6.31	6.37	6.31
IF								

	278	285	292	349
EPI	6.42		6.36	6.49
4			6.38	6.39
8			6.42	6.15
12			6.49	6.03
14			6.45	6.94
OF	6.48	6.49	6.49	
IF				

LAKE 223 02 (mg/L) 1976

DEPTH(m) DAY #

	008	097	124	132	138	145	152	159
EPI	13.87	11.65	10.95				9.57	
4		9.75	10.25				10.78	
8		6.55	10.20				12.10	
12	1.61	.24	8.75				6.96	
14		.01					4.97	
OF								
IF								

	166	173	180	187	194	201	208	215
EPI							8.42	
4			8.76				8.40	
8			11.96				11.93	
12			1.14				.34	
14								
OF								
IF								

	222	229	236	243	250	257	264	271
EPI			9.72				9.15	
4			9.82				9.20	
8			12.89				9.01	
12			.25				.01	
14			.01				.01	
OF								
IF								

	278	285	292	349
EPI			10.11	13.74
4			10.13	11.60
8			10.06	9.29
12			10.33	2.54
14			10.10	.01
OF				
IF				

LAKE 223 NH3-N (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	43	44	6		4		6	
4		29	9				6	
8		10	6				3	
12		230	20				36	
14		2230					98	
OF		63	9	4	6	29	14	28
IF			9	4	6	11	31	

	166	173	180	187	194	201	208	215
EPI	10		5		11		4	
4			5				4	
8			5				3	
12			219				146	
14								
OF	33	41	6	8	17	19	16	5
IF	26	80	14	13	34			

	222	229	236	243	250	257	264	271
EPI	2		4		4		4	
4			5				5	
8			4				4	
12			69				237	
14			660				935	
OF	19	16	23	7	27	36	20	13
IF								

	278	285	292	349
EPI	9		16	37
4			16	37
8			18	90
12			16	362
14			16	1350
OF	58	50	24	
IF				

LAKE 223 NO3-N (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	8	35	38		3		4	
4		16	35				1	
8		78	41				1	
12		1	51				30	
14		8					30	
OF		59	42	17	5	6	2	5
IF			23	5	8	12	15	

	166	173	180	187	194	201	208	215
EPI	1		1		1		1	
4			1				1	
8			1				1	
12			9				7	
14								
OF	11	9	1	1	1	3	2	2
IF	45	41	4	6	8			

	222	229	236	243	250	257	264	271
EPI	3		1		1		1	
4			1				1	
8			4				1	
12			6				7	
14			25				20	
OF	6	5	7	4	9	31	10	12
IF								

	278	285	292	349
EPI	2		3	5
4			3	5
8			4	18
12			3	43
14			2	28
OF	54	24	17	
IF				

LAKE 223 TDN (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	278	315	232		232		256	
4		259	286				226	
8		287	236				230	
12		483	274				304	
14		3420					410	
OF		424	274	226	200	276	314	230
IF			236	132	252	254	400	

	166	173	180	187	194	201	208	215
EPI	180		192		226		230	
4			182				236	
8			258				300	
12			504				436	
14								
OF	230	546	212	214	218	228	342	240
IF	456	468	280	288	350			

	222	229	236	243	250	257	264	271
EPI	216		270		286		225	
4			250				240	
8			298				245	
12			388				580	
14			1350				1470	
OF	278	276	318	302	415	380	350	255
IF								

	278	285	292	349
EPI	220		234	268
4			228	268
8			242	306
12			232	700
14			232	2650
OF	450	272	228	
IF				

LAKE 223 Susp N (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	27	70	15		87		71	
4		67	32				59	
8		56	25				90	
12		441	25				92	
14		667					130	
OF		81	13	48	61	61	109	85
IF			13	25	57	57	94	

	166	173	180	187	194	201	208	215
EPI	57		65		28		65	
4			54				12	
8			105				111	
12			205				135	
14								
OF	64	59	47	40	35	24	2	65
IF	94	144	84	40	78			

	222	229	236	243	250	257	264	271
EPI	40		49		7		85	
4			44				64	
8			65				55	
12			472				447	
14			751				525	
OF	42		75	363		69	29	11
IF								

	278	285	292	349
EPI	83		108	79
4			113	52
8			90	56
12			107	222
14			75	862
OF	76	40	79	
IF				

LAKE 223 TDP (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	3	4	3		3		2	
4		4	3				2	
8		4	3				3	
12		4	3				3	
14		66					3	
OF		4	4	5	3	5	5	5
IF			3	5	4	6	8	

	166	173	180	187	194	201	208	215
EPI	2		2		2		2	
4			2				2	
8			4				3	
12			4				5	
14								
OF	4	7	2	2	2	3	3	2
IF	11	12	4	6	7			

	222	229	236	243	250	257	264	271
EPI	2		2		2		2	
4			2				3	
8			3				2	
12			5				5	
14			10				9	
OF	3	3	4	4	4	5	4	3
IF								

	278	285	292	349
EPI	1		2	2
4			2	1
8			2	2
12			2	3
14			2	12
OF	5	4	3	
IF				

LAKE 223 Susp P (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	3	2	5		4		4	
4		3	5				4	
8		5	4				9	
12		50	4				9	
14		79					11	
OF		2	5	4	3	3	9	4
IF			3	2	3	3	8	

	166	173	180	187	194	201	208	215
EPI	3		2		2		2	
4			1				2	
8			4				4	
12			18				12	
14								
OF	4	5	3	2	2	2	2	2
IF	7	5	4	4	7			

	222	229	235	243	250	257	264	271
EPI	2		3		3		3	
4			2				3	
8			4				3	
12			33				37	
14			115				56	
OF	2	2	3	3	3	8	3	2
IF								

	278	285	292	349
EPI	3		4	3
4			4	3
8			6	4
12			5	11
14			4	114
OF	6	3	4	
IF				

LAKE 223 DIC (uM/L) 1975

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	136	142	168				108	
4		145	166				105	
8		216	166				136	
12		394	216				218	
14		1560					257	
OF		144	159	124	112	128	137	174
IF			133	128	129	145	190	

	166	173	180	187	194	201	208	215
EPI			94		60		56	
4			92				55	
8			123				111	
12			400				347	
14								
OF	162	132	82	77	68	71	70	79
IF	189	267	132	154	197			

	222	229	236	243	250	257	264	271
EPI	54		39		54		46	
4			42				47	
8			124				46	
12			438				588	
14			730				909	
OF		133	134	192	223	212	183	231
IF								

	278	285	292	349
EPI	59		64	35
4			59	53
8			61	118
12			60	288
14			59	871
OF	214	261	216	
IF				

LAKE 223 DOC (uM/L) 1975

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	410	385	428		326		320	
4		343	460				304	
8		314	420				293	
12		290	442				272	
14		1320					274	
OF		380	396	282	300	280	328	336
IF			254	184	244	222	322	

	166	173	180	187	194	201	208	215
EPI	292		330		330		340	
4			334				322	
8			332				320	
12			598				300	
14								
OF	340	418	312	312	308	330	306	344
IF	596	532	344	320	316			

	222	229	236	243	250	257	264	271
EPI	328		422		455		385	
4			404				385	
8			444				415	
12			414				610	
14			754				890	
OF	336	440	400	462	395	500	395	295
IF								

	278	285	292	349
EPI	365		370	395
4			370	385
8			375	400
12			370	420
14			385	1010
OF	395	375	280	
IF				

LAKE 223 Susp C (ug/L) 1976

DEPTH(m) DAY #

	008	097	124	132	138	145	152	159
EPI	580	560	910		670		620	
4		650	720				450	
8		630	680				680	
12		2910	740				760	
14		3500					970	
OF		550	430	570	550	490	1120	560
IF			550	440	440	560	650	

	166	173	180	187	194	201	208	215
EPI	590		640		630		500	
4			560				400	
8			790				1000	
12			1430				1120	
14								
OF	440	670	550	640	490	530	370	560
IF	650	730	510	560	1000			

	222	229	236	243	250	257	264	271
EPI	620		720		640		810	
4			670				850	
8			920				780	
12			3170				3250	
14			4800				3420	
OF	430	500	500	550	450	930	520	300
IF								

	278	285	292	349
EPI	670		790	570
4			740	630
8			870	670
12			780	
14			740	4580
OF	740	270	570	
IF				

LAKE 223 Cl (mg/L) 1976

DEPTH(m) DAY #

	008	097	124	132	138	145	152	159
EPI	.4	.8	.6		.6		1.0	
4		1.0	.6				1.0	
8		1.0	.6				.6	
12		.8	.6				.8	
14		.6					.6	
OF		.6	.6	.6	.8	.8	1.4	.6
IF			.6	.8	.8	.8	.6	

	166	173	180	187	194	201	208	215
EPI	.6		.4		.8		.6	
4			.6				.6	
8			.6				.6	
12			.6				.8	
14								
OF	.6	.8	.4	.4	.8	.6	.8	.8
IF	1.0	.6	.4	.6	.8			

	222	229	236	243	250	257	264	271
EPI	.8		.8		.6		.8	
4			.8				.8	
8			1.0				.8	
12			2.0				.6	
14			1.2				.6	
OF	.8	.6	1.0	.4	.4	.6	.6	.6
IF								

	278	285	292	349
EPI	.4		.4	.6
4			.6	.6
8			.6	.8
12			.8	.8
14			.8	.6
OF	.4	.6	.8	
IF				

LAKE 223 SO4 (mg/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	4.0	3.8	3.0		3.0		3.6	
4		3.4	3.0				3.2	
8		3.4	3.0				3.0	
12		2.8	3.0				3.0	
14		.8					3.0	
OF		4.0	3.2	3.0	3.0	3.4	3.8	4.0
IF			2.6	2.6	2.4	2.8	3.0	

	166	173	180	187	194	201	208	215
EPI	3.8		4.4		5.0		5.4	
4			4.4				5.4	
8			3.0				2.8	
12			2.8				2.4	
14								
OF	3.6	4.0	4.6	5.0	5.0	5.2	5.2	5.4
IF	3.2	3.2	3.2	2.6	2.6			

	222	229	236	243	250	257	264	271
EPI	5.4		6.0		6.0		6.6	
4			6.0				6.8	
8			2.8				6.6	
12			2.0				2.0	
14			.6				1.8	
OF	5.2	5.4	5.4	6.0	5.2	5.6	5.8	5.6
IF								

	278	285	292	349
EPI	6.4		6.8	8.8
4			7.0	7.8
8			7.0	7.8
12			6.8	6.8
14			6.8	.8
OF	5.6	5.4	5.4	
IF				

LAKE 223 Na (mg/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	1.06	1.11	.84		.88		.92	
4		.96	.86				.87	
8		.96	.84				.87	
12		.95	.88				.85	
14		.96					.90	
OF		1.01	.81	.85	.87	.90	.88	.92
IF			.69	.78	.73	.79	.91	

	166	173	180	187	194	201	208	215
EPI	.89		.84		.85		.91	
4			.87				.89	
8			.84				.87	
12			.86				.86	
14								
OF	.92	1.01	.83	.86	.85	.91	.94	.89
IF	.79	.95	.71	.72	.80			

	222	229	236	243	250	257	264	271
EPI	.92		.34		.94		1.11	
4			.94				1.14	
8			.96				1.14	
12			1.03				1.15	
14			.99				1.19	
OF	.94	.94	2.04	.99	1.05	1.25	1.26	1.08
IF								

	278	285	292	349
EPI	.87		.97	1.04
4			.97	.94
8			1.00	.96
12			.98	.96
14			.97	.96
OF	1.19	1.24	1.30	
IF				

LAKE 223 K (mg/L) 1976

DEPTH(m) DAY #

	008	097	124	132	138	145	152	159
EPI	.38	.34	.39		.30		.32	
4		.27	.40				.30	
8		.27	.36				.30	
12		.28	.38				.30	
14		.41					.30	
OF		.45	.40	.37	.28	.32	.36	.31
IF			.39	.41	.30	.32	.44	

	166	173	180	187	194	201	208	215
EPI	.32		.39		.39		.34	
4			.33				.28	
8			.35				.31	
12			.37				.35	
14								
OF	.32	.66	.33	.31	.39	.31	.35	.27
IF	.30	.33	.31	.26	.31			

	222	229	236	243	250	257	264	271
EPI	.34		.34		.31		.32	
4			.31				.32	
8			.34				.32	
12			.39				.38	
14			.44				.42	
OF	.34	.39	.34	.34	.42	.57	.36	.35
IF								

	278	285	292	349
EPI	.33		.27	.34
4			.30	.32
8			.32	.32
12			.32	.32
14			.32	.38
OF	.61	.46	.41	
IF				

LAKE 223 Ca (mg/L) 1976

DEPTH(m) DAY #

	008	097	124	132	138	145	152	159
EPI	3.13	2.36	2.83		2.01		2.16	
4		2.21	2.90				2.28	
8		2.26	2.90				2.22	
12		2.26	3.09				2.39	
14		5.07					2.29	
OF		2.36	2.83	1.95	1.96	2.12	2.22	2.55
IF			2.25	1.79	1.64	1.91	2.22	

	166	173	180	187	194	201	208	215
EPI	2.24		2.03		2.60		2.95	
4			2.09				2.57	
8			2.36				2.48	
12			2.43				2.81	
14								
OF	2.52	2.23	2.09	2.19	2.46	2.53	2.76	2.35
IF	2.35	2.64	1.89	2.12	2.73			

	222	229	236	243	250	257	264	271
EPI	2.31		2.23		2.34		2.47	
4			2.23				2.47	
8			2.18				2.31	
12			2.40				3.13	
14			3.43				4.40	
OF	2.32	2.65	2.45	2.70	2.72	2.91	2.91	2.99
IF								

	278	285	292	349
EPI	2.21		2.68	3.22
4			2.68	2.50
8			2.64	2.66
12			2.78	2.71
14			2.64	4.14
OF	3.16	3.36	3.55	
IF				

LAKE 223 Mg (mg/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	.71	.68	.52		.58		.59	
4		.63	.52				.60	
8		.63	.50				.55	
12		.64	.52				.59	
14		.75					.57	
OF		.66	.49	.57	.57	.61	.57	.54
IF			.40	.40	.50	.55	.57	

	166	173	180	187	194	201	208	215
EPI	.52		.55		.56		.62	
4			.53				.58	
8			.58				.57	
12			.58				.61	
14								
OF	.53	.57	.53	.45	.53	.55	.59	.57
IF	.60	.66	.47	.45	.55			

	222	229	236	243	250	257	264	271
EPI	.55		.60		.62		.52	
4			.57				.54	
8			.56				.60	
12			.62				.59	
14			.61				.62	
OF	.55	.63	.66	.65	.66	.63	.62	.64
IF								

	278	285	292	349
EPI	.50		.56	.69
4			.55	.56
8			.56	.59
12			.53	.52
14			.56	.59
OF	.68	.67	.67	
IF				

LAKE 223 Mn (mg/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI			.01		.02		.01	
4			.01				.01	
8			.01				.01	
12			.01				.01	
14							.04	
OF			.01	.02	.02	.01	.01	.03
IF			.01	.02	.02	.01	.01	

	166	173	180	187	194	201	208	215
EPI	.01		.01		.01		.01	
4			.01				.01	
8			.01				.01	
12			.11				.23	
14								
OF	.03	.03	.01	.01	.01	.01	.01	.01
IF	.03	.03	.01	.01	.03			

	222	229	236	243	250	257	264	271
EPI	.01		.01		.01		.01	
4			.01				.01	
8			.01				.01	
12			.42				.55	
14			.68				.69	
OF	.03	.01	.04	.03	.03	.04	.01	.03
IF								

	278	285	292	349
EPI	.01		.03	.01
4			.03	.01
8			.03	.03
12			.03	.21
14			.03	1.08
OF	.03	.03	.03	
IF				

LAKE 223 Fe (mg/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	.04	.03	.04		.04		.04	
4		.03	.04				.04	
8		.03	.04				.04	
12		.29	.07				.04	
14		33.40					.04	
OF		.03	.01	.11	.04	.07	.07	.07
IF			.04	.11	.04	.18	.41	

	166	173	180	187	194	201	208	215
EPI	.04		.04		.04		.04	
4			.04				.04	
8			.04				.04	
12			.07				.12	
14								
OF	.07	.04	.04	.04	.04	.04	.04	.04
IF	.26	.60	.07	.10	.27			

	222	229	236	243	250	257	264	271
EPI	.04		.04		.11		.09	
4			.04				.04	
8			.04				.04	
12			.52				4.33	
14			9.04				13.40	
OF	.04	.04	.15	.07	.19	.16	.16	.14
IF								

	278	285	292	349
EPI	.04		.04	.03
4			.04	.03
8			.04	.03
12			.04	.22
14			.13	16.80
OF	.17	.17	.13	
IF				

LAKE 223 Susp Fe (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI			112		85		21	
4			115				28	
8			112				62	
12			199				108	
14							151	
OF			94	73	71	30	23	34
IF			28	28	30	41	240	

	166	173	180	187	194	201	208	215
EPI	66		14		2		10	
4			22				7	
8			43				32	
12			412				394	
14								
OF	11	42	26	30	10		89	23
IF	16	308	55	97	268			

	222	229	236	243	250	257	264	271
EPI	2		7		< 2		41	
4			2				56	
8			20				29	
12			1258				2183	
14			434				251	
OF	11	26	46	149	58	343	95	190
IF								

	278	285	292	349
EPI	88		106	23
4			474	62
8			384	120
12			190	759
14			175	1253
OF	88	97	35	
IF				

LAKE 223 SRSi (mg/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	1.560	1.390	1.450		1.470		1.300	
4		1.400	1.460				1.310	
8		1.590	1.460				1.340	
12		2.460	1.540				1.500	
14		5.310					1.570	
OF		1.310	1.450	1.470	1.480	1.360	1.250	1.280
IF			.390	3.880	.349	.411	.672	

	166	173	180	187	194	201	208	215
EPI	1.310		1.260		1.260		1.270	
4			1.260				1.270	
8			1.270				1.170	
12			1.820				1.910	
14								
OF	1.430	1.270	1.250	1.250	1.240	1.240	1.290	1.270
IF	1.040	1.470	.491	.359	.617			

	222	229	236	243	250	257	264	271
EPI	1.290		1.200		1.180		1.180	
4			1.200				1.170	
8			1.140				1.180	
12			2.110				2.410	
14			2.690				2.900	
OF	1.310	1.270	1.280	1.310	1.350	1.420	1.310	1.650
IF								

	278	285	292	349
EPI	1.240		1.300	1.360
4			1.300	1.260
8			1.300	1.390
12			1.300	2.080
14			1.300	3.460
OF	1.320	1.930	1.780	
IF				

LAKE 223 Chl-a (ug/L) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI	1.8	.7	3.1		3.0		.9	
4		.8	3.5				1.7	
8		.9	3.5				4.5	
12		37.4	3.4				6.0	
14		8.4					6.0	
OF								
IF								

	166	173	180	187	194	201	208	215
EPI	1.6		1.0		.9		1.1	
4			1.1				1.2	
8			3.0				3.4	
12			4.8				7.5	
14								
OF								
IF								

	222	229	236	243	250	257	264	271
EPI	1.4		1.4				2.5	
4			1.5				2.8	
8			3.6				2.9	
12			38.4				37.1	
14			46.0				37.3	
OF								
IF								

	278	285	292	349
EPI	3.3		5.9	5.0
4			5.8	3.2
8			5.8	2.3
12			6.3	3.7
14			5.9	14.7
OF				
IF				

LAKE 223 Colour (abs425nm) 1976

DEPTH(m)	DAY #							
	008	097	124	132	138	145	152	159
EPI			.001				.020	
4			.001				.021	
8			.028				.029	
12			.048				.023	
14							.027	
OF			.051	.025	.031	.027	.039	.044
IF			.025	.023	.040	.060	.125	

	166	173	180	187	194	201	208	215
EPI			.029				.027	
4			.026				.023	
8							.033	
12			.036				.048	
14								
OF	.050	.038	.033	.028	.022	.032	.033	.027
IF	.194	.215	.091	.079	.111			

	222	229	236	243	250	257	264	271
EPI			.018				.014	
4			.021				.022	
8			.035				.018	
12			.075				.170	
14			.470				.835	
OF	.035	.034	.034	.040	.046	.065	.042	.037
IF								

	278	285	292	349
EPI			.018	.022
4			.026	.020
8			.022	.020
12			.018	.040
14			.018	.943
OF	.066	.046	.045	
IF				

Appendix 4

1977 Water chemistry data

LAKE 223 Temp (C) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI				6.99		17.73		20.79
4				6.87				14.08
8				6.10				7.69
12				5.27				6.04
14				5.09				5.93
OF				4.64	6.71	17.04	17.95	21.01
IF							14.98	14.78

DEPTH(m)	DAY #							
	157	164	171	178	185	192	199	206
EPI		17.89		20.95		20.68		22.41
4				18.48				22.41
8				9.68				11.38
12				7.18				7.46
14								
OF	18.00	16.71	17.72	20.51	21.11	19.38	22.57	21.85
IF		12.49	15.05	18.78	19.06	18.25	22.40	18.04

DEPTH(m)	DAY #							
	213	220	227	234	241	248	255	262
EPI		19.68		17.57		16.50		15.14
4				17.70				15.17
8				15.82				14.98
12				7.69				8.33
14				7.34				7.48
OF	17.90	17.50	16.80	15.00	15.00	13.50	13.50	13.50
IF	15.80	15.10	14.90	13.00	14.00	12.50	12.00	13.00

DEPTH(m)	DAY #							
	269	276	283	290	297	348		
EPI		12.51		8.91				
4				8.91				
8				8.91				
12				8.91				
14				8.91				
OF	12.69	9.57	8.33	7.80	5.66			
IF		7.02	5.42	5.32	2.70			

LAKE 223 Cond (uS/cm) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	30	30	31	27		28		27
4	27	28	28	27				27
8	28	29	29	27				27
12	34	45	44	28				29
14	54	176	178	28				30
OF				28		30	28	28
IF							51	48

DEPTH(m)	DAY #							
	157	164	171	178	185	192	199	206
EPI				29		27		28
4				28				28
8				27				27
12				29				30
14								
OF	27		27	29	28	28	29	28
IF			33	24	21	20	21	21

DEPTH(m)	DAY #							
	213	220	227	234	241	248	255	262
EPI		28		28		28		28
4				28				28
8				27				28
12				28				60
14				65				84
OF	28	28	29	28	28	29	28	28
IF	22	22	24	28	25	25	21	21

DEPTH(m)	DAY #							
	269	276	283	290	297	348		
EPI		28		29		29		
4				28		29		
8				28		29		
12				28		32		
14				28		65		
OF	28	29	29	32	39			
IF	22	21	24	29	37			

LAKE 223 pH 1977

DEPTH(m) DAY #

	027	061	089	122	129	136	143	150
EPI	6.40	6.30	6.61	6.68		6.37		6.04
4	6.16	6.02	6.15	6.45				6.58
8	5.91	5.80	5.86	6.31				6.41
12	6.11	6.41	6.39	6.19				5.95
14	6.80	6.81	6.81	6.11				5.90
OF				6.21		6.26	6.15	6.08
IF							6.11	6.40

	157	164	171	178	185	192	199	206
EPI				5.80		6.50		6.22
4				5.90				6.11
8				6.18				6.40
12				5.89				6.00
14								
OF	5.69		6.11	5.99	6.19	6.27	6.20	6.10
IF			6.08	6.11	6.29	6.43	6.21	6.22

	213	220	227	234	241	248	255	262
EPI		6.38		6.20		6.21		5.99
4				6.20				5.92
8				6.51				5.98
12				5.94				6.50
14				6.47				6.50
OF	6.47	6.31	6.12	6.17	6.10	6.03	6.06	5.95
IF	6.31	6.36	6.31	6.30	6.44	6.33	6.18	6.27

	269	276	283	290	297	349
EPI		6.19		6.14		6.09
4				6.14		6.09
8				6.20		6.00
12				6.19		5.71
14				6.17		6.71
OF	6.00	6.04	6.11	6.10	6.18	
IF	6.40	6.41	6.49	6.26	6.33	

LAKE 223 Alkal (uEq/L) 1977

DEPTH(m) DAY #

	027	061	089	122	129	136	143	150
EPI								
4								
8								
12								
14								
OF								
IF								

	157	164	171	178	185	192	199	206
EPI		19		10				
4								
8								
12								
14								
OF								
IF								

	213	220	227	234	241	248	255	262
EPI				18				9
4								
8								
12								
14								
OF								
IF								

	269	276	283	290	297	349
EPI		17		25		
4						
8						
12						
14						
OF						
IF						

LAKE 223 O2 (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	13.10	13.23	13.28	10.40				8.45
4	10.39	9.42	9.10	10.60				11.32
8	7.22	6.71	5.45	10.50				11.30
12	.50	< .01	< .01	9.00				2.40
14	< .01	< .01	< .01	8.50				< .01
OF								
IF								

	157	164	171	178	185	192	199	206
EPI				8.40				8.19
4				9.42				8.21
8				12.04				12.18
12				1.00				.15
14								
OF								
IF								

	213	220	227	234	241	248	255	262
EPI				8.87				9.26
4				8.90				9.30
8				11.37				8.90
12				.52				< .01
14				< .01				< .01
OF								
IF								

	269	276	283	290	297	348
EPI				9.82		11.81
4				9.95		11.10
8				9.90		10.15
12				9.90		3.60
14				9.90		< .01
OF						
IF						

LAKE 223 NH3-N (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	25	46	47	23			-	7
4	41	61	33	16				3
8	49	32	18	23				4
12	440	585	536	64				24
14	3370	3860	3930	63				160
OF				24	60	18	7	7
IF							42	78

	157	164	171	178	185	192	199	206
EPI		5		10		5		4
4				11				4
8				7				6
12				38				2
14								
OF	5	7	5	11	21	9	11	7
IF		49	13	15	16	10	10	11

	213	220	227	234	241	248	255	262
EPI		7		5		5		4
4				6				4
8				4				3
12				10				418
14				800				1320
OF	9	8	19	7	6	7	5	5
IF	13	10	16	16	16	9	7	5

	269	276	283	290	297	348
EPI		3		8		46
4				7		60
8				8		76
12				9		332
14				8		1030
OF	7	5	7	19	18	
IF	10	4	7	28	42	

LAKE 223 NO3-N (ug/L) 1977

DEPTH(m) DAY #

	027	061	089	122	129	136	143	150
EPI	4	4	25	25				4
4	12	34	53	25				1
8	81	122	156	29				< 1
12	8	16	16	33				1
14	15	22	21	36				1
OF				33	21	7	3	4
IF							99	52

	157	164	171	178	185	192	199	206
EPI		1		1		< 1		1
4				1				1
8				1				1
12				1				< 1
14								
OF	2	3	< 1	1	2	3	1	1
IF		49	28	8	9	9	11	13

	213	220	227	234	241	248	255	262
EPI		2		2		< 1		2
4				1				2
8				1				2
12				1				28
14				16				31
OF	3	3	3	1	3	5	3	5
IF	12	12	18	17	10	12	7	7

	269	275	283	290	297	348
EPI		2		1		11
4				1		11
8				1		12
12				1		20
14				1		19
OF	5	3	10	7	9	
IF	10	8	18	32	52	

LAKE 223 TDN (ug/L) 1977

DEPTH(m) DAY #

	027	061	089	122	129	136	143	150
EPI	223	265	300	265				280
4	240	290	235	290				245
8	277	315	325	290				240
12	304	740	750	330				310
14	4510	4300	4640	315				490
OF				265	232	205	225	255
IF							680	490

	157	164	171	178	185	192	199	206
EPI		165		190		175		185
4				195				175
8				175				170
12				230				190
14								
OF	190	170	180	200	205	185	180	195
IF		345	435	300	285	230	220	250

	213	220	227	234	241	248	255	262
EPI		220		165		195		170
4				150				170
8				155				160
12				195				650
14				1160				1680
OF	165	175	210	175	170	205	175	190
IF	235	235	290	210	295	260	245	190

	269	276	283	290	297	348
EPI		150		205		260
4				178		255
8				172		295
12				178		560
14				188		1580
OF	215	190	245	230	280	
IF	245	155	140	290	185	

LAKE 223 Susp N (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	63	42	35	87				116
4	52	29	44	110				90
8	56	59	48	99				152
12	273	415	282	147				212
14	1060	1532	797	133				522
OF				54	48	96	121	87
IF							130	34

	157	164	171	178	185	192	199	206
EPI		71		56		52		57
4				56				86
8				75				117
12				258				529
14								
OF	71	51	57	23	83	47	69	69
IF		37	48	56	77	32	52	35

	213	220	227	234	241	248	255	262
EPI		78		67		78		71
4				81				62
8				122				69
12				731				453
14				730				568
OF	71	65	39	71	62	59	60	60
IF	50	52	39	51	46	62	48	62

	269	276	283	290	297	305
EPI		67		113		91
4				74		64
8				112		99
12				75		132
14				40		1026
OF	37	69	73	97	88	
IF	60	58	50	< 1	< 1	

LAKE 223 TDP (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	2	2	3	2				6
4	2	1	2	4				6
8	3	2	2	2				6
12	5	5	5	3				7
14	131	118	170	3				9
OF				2	5	5	5	5
IF							11	11

	157	164	171	178	185	192	199	206
EPI		4		5		5		2
4				5				2
8				5				2
12				10				5
14								
OF	4	5	4	5	6	5	3	2
IF		10	9	9	8	8	5	6

	213	220	227	234	241	248	255	262
EPI		3		2		2		2
4				2				2
8				2				3
12				5				8
14				12				12
OF	3	2	2	2	2	2	2	3
IF	7	5	5	6	7	5	4	4

	269	276	283	290	297	305
EPI		2		2		3
4				2		3
8				2		2
12				2		4
14				2		14
OF	2	3	2	2	2	
IF	4	3	3	4	3	

LAKE 223 Susp P (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	2	2	2	6				3
4	2	2	3	7				2
8	3	3	4	7				7
12	42	44	37	14				18
14	153	128	106	15				58
OF				4	2	8	5	3
IF							17	3

	157	164	171	178	185	192	199	206
EPI		2		2		2		2
4				2				2
8				5				5
12				29				45
14								
OF	3	2	3	2	1	2	2	2
IF		3	3	4	2	2	2	2

	213	220	227	234	241	248	255	262
EPI		3		3		3		3
4				2				3
8				5				4
12				58				43
14				84				72
OF	2	2	2	3	2	4	2	2
IF	2	2	2	1	2	3	3	2

	269	276	283	290	297	349
EPI		4		5		4
4				4		3
8				5		5
12				4		12
14				4		172
OF	3	3	3	3	3	
IF	2	2	1	2	1	

LAKE 223 DIC (uM/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	65	70	61	71		32		28
4	107	117	125	70				23
8	154	178	202	94				52
12	400	495	505	157				263
14	2025	2180	2080	182				313
OF				131		90	50	35
IF							335	404

	157	164	171	178	185	192	199	206
EPI				25		25		27
4				28				28
8				53				58
12				381				455
14								
OF	34		29	31	33	29	45	43
IF			210	227	184	151	213	214

	213	220	227	234	241	248	255	262
EPI		17		29		22		34
4				26				33
8				76				52
12				520				815
14				850				1200
OF	43	42	57	48	71	86	65	64
IF	186	189	289	346	269	285	194	203

	269	276	283	290	297	349
EPI		35		58		48
4				57		50
8				50		67
12				53		212
14				53		585
OF	76	67	81	94	99	
IF	170	158	205	413	444	

LAKE 223 DOC (uM/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	425	395	330	325				380
4	350	370	285	315				375
8	370	385	295	305				375
12	410	555	475	320				405
14	1270	2100	1620	325				420
OF				290	295	330	345	365
IF							930	720

	157	164	171	178	185	192	199	206
EPI		430		495		400		465
4				520				455
8				495				440
12				510				510
14								
OF	320	415	445	495	430	415	435	425
IF		710	1080	740	520	400	460	520

	213	220	227	234	241	248	255	262
EPI		350		315		330		350
4				320				345
8				325				350
12				460				600
14				940				840
OF	400	335	320	330	345	330	340	335
IF	540	360	410	450	670	520	465	390

	269	276	283	290	297	348
EPI		300		315		350
4				305		290
8				300		320
12				300		325
14				300		705
OF	325	295	330	285	285	
IF	520	265	270	300	235	

LAKE 223 Susp C (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	470	480	350	910				630
4	440	440	530	910				700
8	480	510	620	810				990
12	1690	2070	1880	1180				1530
14	6160	6210	4950	1130				3200
OF				480	350	1070	1037	690
IF							1270	460

	157	164	171	178	185	192	199	206
EPI		500		460		410		530
4				780				730
8				640				1020
12				1830				3280
14								
OF	540	340	1050	220	1290	380	440	450
IF		220	320	850	160	350	320	340

	213	220	227	234	241	248	255	262
EPI		530		490		800		830
4				2670				540
8				1450				1590
12				4850				2730
14				4430				3780
OF	460	360	420	660		660	590	510
IF	340	360	310	400	460	430	6040	400

	269	276	283	290	297	348
EPI		630		1160		640
4				1020		600
8				874		640
12				817		1210
14				810		5600
OF	620	610	630	570	720	
IF	620	350	270	290	220	

LAKE 223 Cl (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	.6	1.0	1.0	1.4		1.2		.4
4	.6	1.0	.6	1.2				.6
8	.2	1.0	1.0	1.2				.6
12	.6	.8	1.2	1.2				.6
14	.8	.6	.8	1.2				.6
OF				1.2	.8	1.4	.4	.8
IF							.5	.6

DEPTH(m)	DAY #							
	157	164	171	178	185	192	199	206
EPI		1.0		.6		.6		.8
4				.6				.6
8				.6				.8
12				1.2				.8
14								
OF	.6	1.0	1.4	.8	.6	.6	.6	.6
IF		1.0	1.4	.8	.6	.6	.6	.8

DEPTH(m)	DAY #							
	213	220	227	234	241	248	255	262
EPI		.6		.6		.6		.8
4				.6				.6
8				.6				.8
12				.8				.8
14				.6				.8
OF	.6	.6	.4	.6	.6	.6	.8	1.0
IF	.8	.6	.6	.6	.6	.8	1.0	1.2

DEPTH(m)	DAY #							
	269	276	283	290	297	348		
EPI		1.8		.6		.8		
4				.6		.8		
8				.6		.6		
12				.6		.6		
14				.6		.8		
OF	1.4	1.6	1.0	.6	.6			
IF	1.8	1.4	.8	.8	.6			

LAKE 223 SO4 (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	8.0	8.4	9.0	6.4		6.4		8.6
4	7.2	7.2	7.6	6.4				7.4
8	7.4	7.8	7.4	6.4				7.2
12	6.0	5.6	5.2	6.4				6.6
14	.4	.4	.2	6.2				6.0
OF				6.6	7.4	6.6	8.4	8.8
IF							13.0	6.8

DEPTH(m)	DAY #							
	157	164	171	178	185	192	199	206
EPI		7.2		8.2		8.0		8.0
4				8.0				8.0
8				6.8				6.6
12				5.6				4.4
14								
OF	8.0	7.4	7.4	8.6	8.0	7.8	8.0	8.0
IF		4.8	7.2	4.2	2.8	2.6	2.6	2.4

DEPTH(m)	DAY #							
	213	220	227	234	241	248	255	262
EPI		8.0		8.2		8.0		8.2
4				8.4				8.2
8				6.6				7.8
12				3.6				.8
14				.4				.2
OF	7.8	8.0	8.2	8.2	8.4	8.0	7.8	8.0
IF	2.6	2.4	2.6	2.4	3.0	2.6	2.8	2.6

DEPTH(m)	DAY #							
	269	276	283	290	297	348		
EPI		8.2		7.8		8.2		
4				7.8		8.0		
8				8.0		8.2		
12				8.0		8.8		
14				8.0		5.0		
OF	8.2	8.0	8.6	8.0	8.2			
IF	3.0	2.8	3.2	3.2	3.6			

LAKE 223 H2S-S (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI			< .01	< .01				< .01
4			< .01	< .01				< .01
8			< .01	< .01				< .01
12			< .01	< .01				< .01
14			.01	< .01				< .01
OF								< .01
IF								< .01

	157	164	171	178	185	192	199	206
EPI				< .01				
4				< .01				< .01
8				< .01				< .01
12				< .01				< .01
14								
OF								
IF				< .01				

	213	220	227	234	241	248	255	262
EPI								< .01
4				< .01				< .01
8				< .01				< .01
12				< .01				.38
14				< .01				.21
OF				< .01				< .01
IF								

	269	276	283	290	297	349
EPI				< .01		< .01
4				< .01		< .01
8				< .01		< .01
12				< .01		< .01
14				< .01		< .01
OF				< .01		
IF				< .01		

LAKE 223 Na (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	1.03	1.03	1.04	.94				.91
4	.92	.92	.90	.94				.93
8	.92	.95	.96	.92				.89
12	.92	.97	.94	.90				.89
14	.97	1.00	1.03	.95				.93
OF				.90	.90	.97	.92	.91
IF							1.53	1.77

	157	164	171	178	185	192	199	206
EPI				.96		.93		.93
4				1.00				.91
8				.97				.91
12				.99				.98
14								
OF	.86	.96	.92	.99	.91	.93	.95	.91
IF		1.77	.96	.89	.73	.77	.75	.80

	213	220	227	234	241	248	255	262
EPI		1.02		.95		.93		.95
4				.96				.95
8				.95				.95
12				.95				1.01
14				.93				1.01
OF	.92	1.01	.90	.90	.91	.94	.90	1.12
IF	.78	.87	.85	1.00	.90	.94	.78	.83

	269	276	283	290	297	349
EPI		1.66		.93		.97
4				.93		.95
8				.92		.93
12				.92		.93
14				.92		.98
OF	1.34	1.51	1.04	.95	1.00	
IF	1.43	1.32	1.01	1.24	1.49	

LAKE 223 K (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	.36	.34	.41	.36				.27
4	.32	.30	.35	.36				.27
8	.32	.30	.35	.34				.27
12	.32	.34	.35	.36				.29
14	.52	.53	.61	.36				.33
OF				.32	.31	.35	.30	.29
IF							.61	.40

	157	164	171	178	185	192	199	206
EPI				.33		.24		.31
4				.31				.33
8				.31				.33
12				.35				.41
14								
OF	.25	.31	.29	.31	.24	.26	.33	.33
IF		.35	.23	.21	.16	.18	.26	.26

	213	220	227	234	241	248	255	262
EPI		.33		.29		.34		.32
4				.29				.32
8				.31				.32
12				.41				.44
14				.47				.54
OF	.29	.29	.29	.29	.27	.36	.34	.36
IF	.23	.23	.25	.24	.29	.35	.32	.30

	269	276	283	290	297	348
EPI		.29		.29		.35
4				.29		.34
8				.29		.34
12				.29		.34
14				.29		.36
OF	.34	.31	.37	.33	.45	
IF	.38	.25	.24	.33	.33	

LAKE 223 Ca (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	3.06	2.86	3.09	2.78				2.52
4	2.54	2.63	2.79	2.67				2.46
8	2.49	2.74	2.99	2.72				2.52
12	2.85	3.19	3.45	2.72				2.52
14	6.07	5.99	6.39	2.78				2.63
OF				2.89	2.65	2.79	2.46	2.46
IF							5.63	5.41

	157	164	171	178	185	192	199	206
EPI				2.11		2.24		2.46
4				2.11				2.51
8				2.26				2.56
12				2.42				2.75
14								
OF	2.04	2.54	2.32	2.21	2.24	2.29	2.41	2.51
IF		5.23	3.42	2.37	1.99	1.90	2.12	2.27

	213	220	227	234	241	248	255	262
EPI		2.51		2.79		2.38		2.43
4				2.88				2.43
8				2.75				2.53
12				2.79				3.92
14				4.35				4.47
OF	2.61	2.41	2.75	2.79	2.88	2.63	2.38	2.53
IF	2.41	2.31	2.88	3.39	2.97	2.79	2.18	1.99

	269	276	283	290	297	348
EPI		2.63		2.68		2.50
4				2.68		2.46
8				2.77		2.54
12				2.77		2.42
14				2.77		2.83
OF	2.38	2.68	2.87	2.91	2.87	
IF	2.18	2.29	2.53	3.82	9.41	

LAKE 223 Mg (mg/L) 1977

DEPTH(m) DAY #

	027	061	089	122	129	136	143	150
EPI	.73	.69	.67	.60				.54
4	.62	.65	.59	.58				.52
8	.61	.65	.66	.59				.52
12	.61	.67	.67	.60				.51
14	.75	.76	.75	.59				.52
OF				.61	.64	.56	.51	.50
IF							1.10	.92

	157	164	171	178	185	192	199	205
EPI				.56		.53		.55
4				.56				.54
8				.57				.57
12				.58				.61
14								
OF	.54	.60	.58	.57	.51	.53	.54	.57
IF		.98	.81	.55	.44	.44	.47	.50

	213	220	227	234	241	248	255	262
EPI		.41		.57		.56		.45
4				.59				.45
8				.53				.44
12				.56				.54
14				.62				.55
OF	.56	.36	.57	.55	.53	.59	.43	.46
IF	.54	.35	.59	.66	.58	.63	.40	.36

	269	276	283	290	297	348
EPI		.57		.56		.54
4				.54		.50
8				.57		.55
12				.57		.46
14				.58		.44
OF	.48	.55	.59	.58	.59	
IF	.44	.51	.51	.70	.77	

LAKE 223 Mn (mg/L) 1977

DEPTH(m) DAY #

	027	061	089	122	129	136	143	150
EPI	.01	< .01	.01	.06				.03
4	.01	< .01	.01	.04				.03
8	.04	.06	.07	.04				.01
12	.34	.35	.38	.12				.15
14	1.32	1.40	1.35	.07				.27
OF				.01	< .01	.01	.03	.03
IF							.03	.06

	157	164	171	178	185	192	199	205
EPI				< .01		.02		.04
4				.01				.05
8				< .01				.02
12				.28				.39
14								
OF	.03	.03	.01	.01	.03	.04	.02	.05
IF	.03	.04	< .01	.01	.01	.01	.01	.04

	213	220	227	234	241	248	255	262
EPI		.01		.04		.03		.04
4				.05				.01
8				.03				.03
12				.55				.65
14				.65				.73
OF	.06	.01	.04	.05	.04	.01	.03	.01
IF	.05	< .01	.03	.05	.01	.01	.01	< .01

	269	276	283	290	297	348
EPI		.04		.07		.03
4				.06		.03
8				.05		.05
12				.06		.15
14				.06		.50
OF	.01	.01	.03	.03	.02	
IF	< .01	< .01	.01	.01	.02	

LAKE 223 Fe (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	< .03	< .04	< .04	.11				< .04
4	.03	< .04	.04	.07				.04
8	.03	.08	< .04	.07				< .04
12	1.48	4.23	5.07	.15				.08
14	40.00	43.30	43.10	.15				.24
OF				.07	< .04	< .04	< .04	< .04
IF							.32	1.28

	157	164	171	178	185	192	199	206
EPI				< .04		.11		< .04
4				< .04				.04
8				< .04				< .04
12				.04				.04
14								
OF	< .04	.04	< .04	< .04	< .04	< .04	< .04	< .04
IF		.84	.24	.15	.12	.11	.15	.15

	213	220	227	234	241	248	255	262
EPI		.08		.08		< .03		< .03
4				.04				< .03
8				.04				< .03
12				1.11				8.49
14				10.90				14.50
OF	.04	.11	.04	.04	< .04	< .03	.07	< .03
IF	.19	.19	.25	.33	.21	.10	.13	.13

	269	276	283	290	297	349
EPI		.04		.04		.08
4				.04		.08
8				.11		.12
12				.04		.27
14				.07		11.70
OF	< .03	.07	.04	.07	.04	
IF	.03	.11	.18	.43	.51	

LAKE 223 Ferrous-Fe (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	< .01	< .01	< .01	< .01				< .01
4	< .01	< .01	< .01	< .01				< .01
8	< .01	< .01	< .01	< .01				< .01
12	1.32	3.85	5.49	< .01				.01
14	43.00	47.40	52.90	.01				.25
OF				< .01				< .01
IF								

	157	164	171	178	185	192	199	206
EPI				< .01				< .01
4				< .01				< .01
8				< .01				< .01
12				.01				.01
14								
OF				< .01				.02
IF				.09				.07

	213	220	227	234	241	248	255	262
EPI				< .01				< .01
4				< .01				< .01
8				< .01				< .01
12				< .01				8.70
14				11.00				13.25
OF				< .01				.01
IF								.04

	269	276	283	290	297	348
EPI				< .01		< .01
4				< .01		< .01
8				< .01		< .01
12				< .01		.02
14				< .01		10.30
OF				< .01		
IF				.27		

LAKE 223 Ferric-Fe (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	< .01	< .01	< .01	< .01				.01
4	< .01	< .01	< .01	.01				< .01
8	.01	.01	< .01	.01				.01
12	.12	.19	.16	.04				.15
14	1.00	.30	.40	.05				.35
OF				.01				.01
IF								

	157	164	171	178	185	192	199	206
EPI				.02				< .01
4				< .01				.01
8				< .01				.01
12				.10				.02
14								
OF				.01				< .01
IF				.04				< .01

	213	220	227	234	241	248	255	262
EPI				< .01				< .01
4				< .01				< .01
8				< .01				< .01
12				< .01				< .01
14				.15				.55
OF				< .01				.01
IF								.04

	269	276	283	290	297	349
EPI				.01		.01
4				.01		< .01
8				.02		.01
12				.01		.06
14				.02		.10
OF				.02		
IF				.06		

LAKE 223 Susp Fe (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI		12						
4		27	38					38
8		79	101					101
12		1848	647					647
14		2173	1856					1856
OF			30		36	42	54	30
IF			474				920	474

	157	164	171	178	185	192	199	206
EPI		18		25		25		33
4				31				35
8				38				46
12				750				1799
14								
OF	< 1	50	23	23		29	73	25
IF		317	35	79		30	99	46

	213	220	227	234	241	248	255	262
EPI		32		7		32		40
4				11				37
8				24				63
12				2010				220
14				340				374
OF	35	42	55	13	33	32	32	37
IF	40	24	107	23	51	51	20	51

	269	276	283	290	297	349
EPI		71		251		29
4				200		44
8				221		65
12				213		729
14				198		707
OF	32	43		95	87	
IF	44	23		125	84	

LAKE 223 SRS1 (mg/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	1.400	1.310	1.440	1.410				1.150
4	1.230	1.240	1.370	1.380				1.140
8	1.440	1.460	1.620	1.410				1.210
12	2.360	2.420	2.600	1.550				1.590
14	5.570	5.440	5.700	1.520				1.670
OF				1.390	1.410	1.260	1.230	1.150
IF							2.920	4.740

	157	164	171	178	185	192	199	205
EPI				1.310		1.350		1.340
4				1.290				1.340
8				1.130				1.140
12				1.700				1.830
14								
OF	1.240	1.210	1.240	1.310	1.350	1.320	1.340	1.390
IF		4.670	2.250	.782	.466	.391	.391	.466

	213	220	227	234	241	248	255	262
EPI		1.300		1.300		1.180		1.240
4				1.300				1.210
8				1.110				1.250
12				2.010				2.330
14				2.560				2.950
OF	1.330	1.310	1.280	1.300	1.230	1.210	1.200	1.250
IF	.620	.536	.928	1.550	1.200	1.090	.562	.539

	269	276	283	290	297	348
EPI		1.270		1.370		1.550
4				1.370		1.520
8				1.370		1.570
12				1.370		2.300
14				1.360		3.550
OF	1.340	1.240	1.320	1.370	1.410	
IF	.732	.547	1.130	2.510	3.700	

LAKE 223 Chl-a (ug/L) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	5.1	4.3	.3	4.1		2.4		.5
4	1.4	.9	1.6	5.0				1.5
8	1.0	.7	1.6	6.8				6.2
12	7.7	19.0	13.8	8.2				7.5
14	21.4	12.3	8.5	7.3				18.5
OF								
IF								

	157	164	171	178	185	192	199	206
EPI				1.0		1.1		1.2
4				1.2				1.4
8				5.6				3.9
12				24.7				60.8
14								
OF								
IF								

	213	220	227	234	241	248	255	262
EPI		1.6		1.7		3.1		3.9
4				1.7				4.1
8				5.8				5.6
12				92.5				39.4
14				64.3				65.4
OF								
IF								

	269	276	283	290	297	348
EPI		4.1		5.8		3.5
4				6.2		3.4
8				6.3		2.4
12				6.2		4.2
14				6.4		22.2
OF						
IF						

LAKE 223 Colour (abs425nm) 1977

DEPTH(m)	DAY #							
	027	061	089	122	129	136	143	150
EPI	.017	.018	.015	.020				.021
4	.014	.018	.016	.025				.026
8	.019	.016	.019	.017				.020
12	.043	.094	.186	.022				.029
14	2.950	3.050	2.830	.024				.045
OF				.017	.028	.028	.022	.021
IF							.170	.194

	157	164	171	178	185	192	199	206
EPI				.031				.026
4				.045				.023
8				.026				.027
12				.034				.040
14								
OF	.030	.053	.034	.033	.034	.032	.059	.040
IF		.212	.357	.197	.144	.112	.130	.148

	213	220	227	234	241	249	255	262
EPI		.031		.023		.024		.023
4				.029				.032
8				.031				.030
12				.150				.600
14				1.390				1.137
OF	.032	.041	.041	.026	.033	.024	.029	.034
IF	.162	.141	.122	.160	.216	.163	.139	.108

	269	275	283	290	297	348
EPI		.019		.027		.016
4				.026		.017
8				.028		.019
12				.024		.028
14				.024		.509
OF	.028	.026	.024	.027	.025	
IF	.172	.077	.090	.108	.106	

Appendix 5

1978 Water chemistry data

LAKE 223 Temp (C) 1978

DEPTH(m) DAY #

	011	046	074	128	135	142	149	156
EPI				6.85		14.54		14.50
4				5.93				12.75
8				4.77				6.27
10								
11								
12				4.73				5.11
13				4.93				
14								5.03
OF				6.90		14.30	20.00	14.50
IF				6.10		12.90	18.00	12.85

	163	170	177	184	191	198	205	212
EPI		16.80		21.31		21.38		19.58
4				18.35				19.59
8				7.75				8.62
10								
11								
12				5.73				5.78
13								
14				5.52				
OF	14.50	16.50	19.00	21.00	19.00	21.20	20.30	18.71
IF	13.00	16.50	17.70	19.50	17.00	21.00	19.50	16.80

	219	226	233	240	247	254	261	268
EPI		20.69		18.32		18.77		13.82
4				18.32				13.94
8				10.95				13.82
10				7.19				5.64
11				6.65				7.11
12				6.24				6.81
13				6.00				6.31
14				5.90				6.25
OF	21.00	21.80	18.00	17.40	19.10	17.50	14.20	12.40
IF	20.50	21.70	18.00	15.60	19.00	17.20	13.50	11.00

	275	282	289	296	339
EPI		11.52		8.69	
4				5.77	
8				8.77	
10				8.77	
11				8.77	
12				8.77	
13				8.77	
14				6.46	
OF	12.00	10.00	7.20	5.80	
IF	11.00	8.80	5.00	5.00	

LAKE 223 Cond (uS/cm) 1978

DEPTH(m) DAY #

	011	046	074	128	135	142	149	156
EPI	31	31	31	27		26		26
4	29	29	29	28				26
8	29	30	31	30				29
10								
11								
12	33	34	40	32				32
13				69				
14	103	124	109					34
OF				27	27	27	26	27
IF				18	18	20	23	19

	163	170	177	184	191	198	205	212
EPI		27		28		27		27
4				27				27
8				29				28
10								
11								
12				33				40
13								
14				45				
OF		27	27	27	28	27	27	28
IF		20	19	20	19	20	19	19

	219	226	233	240	247	254	261	268
EPI		26		27		28		29
4				27				28
8				28				28
10				31				31
11				31				33
12				58				64
13				60				89
14				80				102
OF	27	27	28	28	28	28	28	29
IF	19	20	20	20	20	21	20	20

	275	282	289	296	339
EPI		29		29	31
4				29	29
8				29	29
10				29	31
11				29	31
12				29	31
13				29	34
14				156	95
OF	29	29	29	30	
IF	21	21	22	24	

LAKE 223 pH 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	6.11	6.03	6.10	5.89		6.29		6.20
4	6.03	5.99	5.84	5.81				6.14
8	5.88	5.83	5.51	5.73				5.97
10								
11								
12	5.73	5.89	6.12	5.80				5.89
13				6.57				
14	6.89	6.84	6.73					6.00
OF				5.97	5.99	6.12	6.20	6.10
IF				6.37	6.30	6.31	6.32	6.28

	163	170	177	184	191	198	205	212
EPI		6.11		5.91		6.01		6.01
4				6.27				6.02
8				6.21				6.32
10								
11								
12				6.09				6.30
13								
14				6.38				
OF	6.19	6.01	6.10	6.09	5.82	5.98	5.95	5.91
IF	6.38	6.22	6.32	6.39	6.29	6.31	6.30	6.31

	219	226	233	240	247	254	261	268
EPI		5.67		5.92		5.95		5.86
4				5.88				5.86
8				6.19				5.86
10				5.91				6.09
11				5.92				6.03
12				6.46				6.52
13				6.51				6.67
14				6.61				6.59
OF	6.01	5.79	5.72	5.82	5.81	5.89	5.92	6.06
IF	6.40	6.20	6.29	6.30	6.29	6.40	6.37	6.33

	275	282	289	296	339
EPI		5.91		5.87	5.70
4				5.84	5.73
8				5.85	5.68
10				5.83	5.61
11				5.74	5.59
12				5.73	5.69
13				5.73	5.74
14				6.59	6.93
OF	5.91	5.93	6.04	5.79	
IF	6.29	6.38	6.40	6.37	

LAKE 223 Alkal (uEq/L) 1979

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	155
EPI			24	21		22		22
4			15					
8			13					
10								
11								
12			26					
13								
14			359					
OF								
IF								

	163	170	177	184	191	198	205	212
EPI		19		6		7		10
4				12				7
8				45				52
10								
11								
12				108				175
13								
14				437				
OF								
IF			85	94	88	98	91	89

	219	226	233	240	247	254	261	268
EPI		6		6		7		7
4				15				9
8				52				7
10				68				116
11				122				156
12				507				605
13				530				916
14				773				1047
OF								
IF	93	93	97	100	103	105	94	93

	275	282	289	296	339
EPI		11		12	9
4				12	10
8				10	11
10				13	12
11				13	30
12				13	38
13				15	49
14				1646	935
OF					
IF	79	95	101	106	

LAKE 223 O2 (mg/L) 1978

DEPTH(m) DAY #

	011	046	074	128	135	142	149	156
EPI	12.20	11.76	11.20	9.32				9.32
4	10.30	9.99	9.11	9.70				10.10
8	8.68	7.65	5.34	7.90				8.94
10								
11								
12	2.21	.40	.26	2.12				.54
13				< .01				
14	< .01	< .01	< .01					.39
OF								
IF								

	163	170	177	184	191	198	205	212
EPI				8.27				< 9
4				9.70				8.55
8				9.48				10.48
10								
11								
12				< .01				< .01
13								
14				< .01				
OF								
IF								

	219	226	233	240	247	254	261	269
EPI				8.50				9.20
4				8.62				9.41
8				10.23				9.10
10				.30				.47
11				.18				.10
12				< .01				< .01
13				< .01				< .01
14				< .01				< .01
OF								
IF								

	275	282	289	296	339
EPI				9.80	11.81
4				9.70	11.20
8				9.82	10.73
10				9.72	9.19
11				9.73	5.92
12				10.02	2.80
13				9.50	.81
14				< .01	< .01
OF					
IF					

LAKE 223 NH3-N (ug/L) 1978

DEPTH(m) DAY #

	011	046	074	128	135	142	149	155
EPI	56	60	71	21		19		15
4	57	63	65	17				12
8	79	79	19	13				7
10								
11								
12	300	300	418	33				137
13				1475				
14	1590	2090	2290					211
OF				22	6	14	16	16
IF				10	5	10	29	13

	163	170	177	184	191	198	205	212
EPI		6		6		5		5
4				6				7
8				4				4
10								
11								
12				265				210
13								
14				475				
OF	11	12	9	8	13	8	9	7
IF	11	8	7	6	10	8	6	4

	219	226	233	240	247	254	261	268
EPI		4		9		11		8
4				5				10
8				10				5
10				5				9
11				< 1				7
12				405				452
13				460				985
14				870				1290
OF	8	14	5	7	10	14	4	9
IF	6	5	6	4	6	5	3	6

	275	282	289	296	339
EPI		16		11	35
4				9	49
8				10	65
10				13	112
11				11	230
12				10	425
13				13	475
14				2700	465
OF	9	10	5	12	
IF	4	8	3	7	

LAKE 223 NO3-N (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	12	14	15	77		29		10
4	11	21	58	82				9
8	25	56	161	118				33
10								
11								
12	45	34	10	151				43
13				17				
14	14	21	16					12
OF				74	62	25	15	10
IF				33	13	7	28	17

	163	170	177	184	191	198	205	212
EPI		< 1		< 1		1		1
4				< 1				1
8				< 1				< 1
10								
11								
12				2				8
13								
14				9				
OF	4	2	2	< 1	< 1	2	1	2
IF	13	11	16	8	5	9	9	5

	219	226	233	240	247	254	261	268
EPI		< 1		< 1		< 1		< 1
4				< 1				< 1
8				< 1				< 1
10				< 1				< 1
11				< 1				< 1
12				11				18
13				13				19
14				16				21
OF	< 1	3	< 1	5	2	3	1	< 1
IF	5	10	5	< 1	6	7	6	4

	275	282	289	296	339
EPI		< 1		< 1	6
4				< 1	4
8				< 1	7
10				< 1	17
11				< 1	21
12				< 1	25
13				< 1	14
14				27	14
OF	< 1	2	< 1	10	
IF	5	5	23	22	

LAKE 223 TDN (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	295	320	310	272		330		198
4	275	275	315	290				220
8	305	340	345	304				215
10								
11								
12	530	550	630	360				385
13				2150				
14	1940	3000	2740					470
OF				272	250	220	235	200
IF				218	194	180	310	202

	163	170	177	184	191	198	205	212
EPI		215		180		225		166
4				196				210
8				176				180
10								
11								
12				520				510
13								
14				750				
OF	205	205	196	200	200	215	215	190
IF	205	240	215	250	210	235	260	214

	219	226	233	240	247	254	261	268
EPI		166		215		160		190
4				175				175
8				210				190
10				190				175
11				220				225
12				750				750
13				920				1560
14				1450				1950
OF	230	176	210	200	185	190	178	170
IF	230	212	225	225	195	200	170	175

	275	282	289	296	339
EPI		225		230	205
4				230	210
8				210	230
10				240	270
11				225	410
12				215	650
13				215	720
14				3050	730
OF	170	180	230	240	
IF	180	188	245	210	

LAKE 223 Susp N (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	57	24	61	63		69		76
4	17	41	76	55				99
8	48	28	76	72				152
10								
11								
12	48	61	251	143				280
13				355				
14	606	484	798					325
OF				58	61	46	34	49
IF				49	63	1	28	35

	163	170	177	184	191	198	205	212
EPI		30		38		68		31
4				38				123
8				220				189
10								
11								
12				330				559
13								
14				460				
OF	33	140	41	94	37	47	56	27
IF	23	44	65	31	13	45	31	73

	219	226	233	240	247	254	251	268
EPI		48		99		25		70
4				73				62
8				184				64
10				227				128
11				576				498
12				641				607
13				644				759
14				898				929
OF	99	68	30	109	25	13	75	73
IF	29	77	26	109	5	12	40	42

	275	282	289	296	339
EPI		46		59	68
4				68	103
8				77	70
10				79	75
11				51	66
12				62	128
13					176
14				763	191
OF	57	37	37	43	
IF	35	26	18	29	

LAKE 223 TDP (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	4	3	3	2		7		2
4	2	3	3	2				2
8	3	3	3	3				2
10								
11								
12	4	5	7	3				4
13				23				
14	20	51	57					5
OF				3	3	3	3	3
IF				4	5	4	7	3

	163	170	177	184	191	198	205	212
EPI		3		2		2		1
4				3				2
8				3				3
10								
11								
12				6				5
13								
14				8				
OF	3	3	3	3	3	2	2	2
IF	4	5	6	5	5	5	4	4

	219	226	233	240	247	254	261	268
EPI		2		2		2		2
4				2				2
8				3				2
10				3				3
11				5				4
12				9				7
13				10				10
14				14				13
OF	2	3	2	2	2	2	2	2
IF	4	6	4	5	3	4	2	3

	275	282	289	296	339
EPI		1		2	2
4				2	2
8				2	2
10				2	2
11				2	3
12				2	4
13				2	5
14				17	5
OF	2	2	2	2	
IF	3	2	3	3	

LAKE 223 Susp P (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	5	3	2	5		8		6
4	3	3	3	5				3
8	3	3	4	5				5
10								
11								
12	9	17	46	12				20
13				61				
14	203	150	110					28
OF				4	5	3	4	4
IF				3	7	1	4	2

	163	170	177	184	191	198	205	212
EPI		3		3		2		3
4				3				2
8				8				8
10								
11								
12				37				49
13								
14				49				
OF	3	2	4	5	2	2	2	2
IF	1	2	3	2	2	2	3	3

	219	226	233	240	247	254	261	268
EPI		2		2		3		3
4				2				3
8				7				2
10				11				
11				35				39
12								61
13				61				96
14				107				126
OF	2	2	2	3	3	3	3	4
IF	3	4	2	3	3	3	3	3

	275	282	289	295	339
EPI		3		4	3
4				4	3
8				3	4
10				4	4
11				4	8
12				3	17
13				5	32
14				166	33
OF	2	2	3	3	
IF	3	2	2	5	

LAKE 223 DIC (uM/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	49	65	72	107		39		32
4	53	74	98	125				49
9	97	117	176	156				134
10								
11								
12	234	362	408	335				382
13				865				
14	1080	1415	1360					460
OF				83	75	46	53	37
IF				121	141	184	248	164

	163	170	177	184	191	198	205	212
EPI		31		21		22		18
4				24				24
9				145				114
10								
11								
12				500				665
13								
14				590				
OF	39	42	47	40	47	37	40	46
IF	168	206	222	237	220	230	232	222

	219	226	233	240	247	254	261	268
EPI		29		20		22		39
4				23				40
8				133				48
10				415				480
11				455				585
12				795				900
13				805				1230
14				1060				1380
OF	49	71	52	56	48	71	58	56
IF	226	270	216	222	205	232	193	202

	275	282	289	296	339
EPI		48		51	31
4				57	43
8				60	58
10				57	108
11				62	155
12				60	298
13				63	326
14				2050	1050
OF	68	67	67	72	
IF	197	216	212	272	

LAKE 223 DOC (uM/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	390	345	325	290		355		340
4	350	315	300	300				360
8	325	345	295	290				330
10								
11								
12	300	390	425	265				305
13				730				
14	1120	1400	1430					355
OF				300	300	345	290	340
IF				290	285	285	425	305

	163	170	177	184	191	198	205	212
EPI		375		380		350		320
4				340				340
8				350				330
10								
11								
12				340				420
13								
14				490				
OF	200	370	320	335	325	345	365	330
IF	195	360	325	350	340	325	365	300

	219	226	233	240	247	254	261	268
EPI		320		335		280		325
4				335				345
8				325				325
10				330				320
11				330				365
12				590				640
13				620				840
14				790				950
OF	335	330	250	330	320	285	315	330
IF	325	350	275	360	325	285	370	310

	275	282	289	296	339
EPI		295		395	345
4				355	315
8				360	325
10				355	320
11				340	305
12				345	325
13				345	300
14				1350	310
OF	300	280	330	335	
IF	315	240	305	305	

LAKE 223 Susp C (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	810	320	320	590		710		590
4	380	430	380	560				560
8	530	490	410	690				950
10								
11								
12	760	990	1530	1120				1740
13				2290				
14	6750	5170	4160					2250
OF				530	680	580	490	510
IF				400	550	220	1670	380

	163	170	177	184	191	198	205	212
EPI		550		590		530		464
4				690				610
8				1310				1300
10								
11								
12				2370				3300
13								
14				2400				
OF	480	1140	490	650	560	420	480	360
IF	340	560	370	350	380	370	410	350

	219	226	233	240	247	254	261	268
EPI		420		630		490		670
4				440				590
8				1070				550
10				1110				970
11				3090				3690
12				3520				3990
13				3560				4890
14				4960				6260
OF	440	370	480	460	470	400	610	620
IF	390	400	370	410	350	340	650	390

	275	282	289	296	339
EPI		510		610	570
4				630	680
8				720	510
10				610	570
11				570	680
12				640	1290
13					1770
14				5014	1830
OF	450	460	410	530	
IF	390	370	270	660	

LAKE 223 Cl (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	.8	.8	1.2	.6		1.0		.4
4	.8	.6	.6	.6				.2
8	1.0	.6	.2	.8				.2
10								
11								
12	1.0	1.0	.6	1.0				.2
13				.8				
14	.8	.8	.6					.2
OF				.8	.6	.6	.2	.2
IF				.8	.8	.6	.4	.2

	163	170	177	184	191	198	205	212
EPI		.8		.2		.4		.6
4				.2				.6
8				.4				.6
10								
11								
12				.2				.6
13								
14				.2				
OF	.6	.6	.6	.2	.8	.4	1.0	.8
IF	.4	.6	.4	.2	.6	.6	.6	.6

	219	226	233	240	247	254	261	268
EPI		.4		.4		.8		1.0
4				.4				.8
8				.6				.8
10				.6				.8
11				.6				1.0
12				.6				.8
13				.6				.6
14				.8				.8
OF	.8	.4	.6	.6	< .2	.6	.4	1.0
IF	.6	.4	.8	.6	.6	.8	.6	.8

	275	282	289	296	339
EPI		.2		.8	.2
4				.8	.6
8				1.0	.6
10				1.2	.4
11				.8	.4
12				1.0	.4
13				1.0	.4
14				1.0	.6
OF	.4	.4	1.0	.8	
IF	.4	.4	1.4	1.0	

LAKE 223 SO4 (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	9.4	9.0	8.8	7.8		7.6		8.2
4	8.2	8.4	8.2	8.0				7.8
8	8.2	8.4	9.0	9.0				8.0
10								
11								
12	8.6	9.0	7.8	8.4				7.4
13				2.0				
14	.8	.8	.6					7.0
OF				7.6	7.6	7.6	7.8	8.0
IF				3.4	3.2	3.2	3.6	3.4

	163	170	177	184	191	198	205	212
EPI		7.6		8.0		8.4		8.0
4				8.0				8.2
8				7.4				7.4
10								
11								
12				6.2				5.6
13								
14				5.4				
OF	7.6	7.8	7.9	8.2	8.2	8.4	7.8	8.2
IF	3.2	2.8	2.8	2.6	2.6	2.6	2.2	2.4

	219	226	233	240	247	254	261	268
EPI		8.4		8.6		8.6		9.0
4				8.6				8.2
8				7.4				8.2
10				6.6				5.4
11				5.6				4.4
12				3.2				2.2
13				2.8				.6
14				1.0				.4
OF	9.0	8.4	8.6	8.4	8.6	8.6	8.4	8.2
IF	2.8	2.6	2.6	2.6	2.8	2.8	3.0	2.4

	275	282	289	296	339
EPI		8.8		8.6	9.6
4				8.6	9.4
8				8.8	9.4
10				9.8	9.6
11				9.0	9.4
12				8.6	8.8
13				8.6	8.6
14				.4	8.8
OF	8.6	8.8	8.2	8.8	
IF	2.8	3.0	2.2	2.8	

LAKE 223 H2S-S (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	< .01		.01	< .01				< .01
4	< .01	< .01	.01	< .01				< .01
8	< .01	< .01	.01					< .01
10								
11								
12	< .01	< .01	.02	< .01				< .01
13				< .01				
14	.04	< .01	.03					< .01
OF								
IF								

	163	170	177	184	191	198	205	212
EPI				< .01				
4				< .01				< .01
8				< .01				< .01
10								
11								
12				< .01				< .01
13								
14				.01				
OF								
IF								

	219	226	233	240	247	254	261	268
EPI				< .01				
4				< .01				< .01
8				< .01				< .01
10				< .01				< .01
11				< .01				< .01
12				.22				.01
13				.29				.02
14				.39				.03
OF								
IF								

	275	282	289	296	339
EPI					
4					< .01
8				< .01	< .01
10				< .01	< .01
11				< .01	
12				< .01	< .01
13				< .01	< .01
14				.02	.04
OF					
IF					

LAKE 223 Na (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	1.07	1.15	1.06	1.11		1.14		.86
4	.93	.97	.97	1.21				.87
8	1.01	.95	.97	1.31				.89
10								
11								
12	1.01	1.16	1.00	1.39				.96
13				1.41				
14	1.05	1.23	1.08					.95
OF				1.21	.99	.99	.80	.86
IF				1.01	.96	.83	.71	.71

	163	170	177	184	191	198	205	212
EPI		.86		.87		.87		.92
4				.87				.96
8				.92				.96
10								
11								
12				.98				1.10
13								
14				.98				
OF	.79	.85	.83	.87	.94	.87	.83	.96
IF	.67	.63	.67	.69	.75	.69	.69	.77

	219	226	233	240	247	254	251	268
EPI		.95		.98		.96		.95
4				.95				.94
8				1.01				.94
10				1.10				.99
11				1.09				1.08
12				1.10				1.01
13				1.14				1.04
14				1.16				1.04
OF	.86	.89	.98	1.07	.98	.96	.94	.95
IF	.67	.78	.80	.86	.79	.81	.75	.77

	275	282	289	296	339
EPI		1.00		1.28	1.37
4				1.58	1.43
8				1.30	1.08
10				1.65	1.01
11				1.16	1.01
12				1.56	1.01
13				1.24	1.50
14				1.28	1.17
OF	.95	1.05	.95	1.72	
IF	.77	.84	.89	1.58	

LAKE 223 K (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	.42	.38	.33	.34		.42		.32
4	.35	.34	.31	.34				.32
8	.37	.34	.31	.36				.36
10								
11								
12	.37	.36	.33	.36				.40
13				.50				
14	.42	.46	.47					.34
OF				.34	.34	.36	.30	.28
IF				.36	.36	.38	.38	.26

DEPTH(m)	DAY #							
	163	170	177	184	191	198	205	212
EPI		.32		.28		.30		.26
4				.26				.25
8				.30				.30
10								
11								
12				.38				.37
13								
14				.40				
OF	.30	.30	.21	.25	.26	.26	.28	.26
IF	.27	.25	.13	.19	.26	.22	.24	.24

DEPTH(m)	DAY #							
	219	226	233	240	247	254	261	268
EPI		.26		.33		.27		.25
4				.31				.23
8				.35				.25
10				.39				.31
11				.41				.38
12				.46				.42
13				.46				.46
14				.50				.48
OF	.26	.28	.25	.33	.27	.27	.29	.25
IF	.24	.32	.28	.35	.29	.31	.29	.27

DEPTH(m)	DAY #							
	275	282	289	296	339			
EPI		.25		.31	.32			
4				.33	.32			
8				.31	.32			
10				.33	.32			
11				.33	.32			
12				.33	.32			
13				.33	.32			
14				.61	.32			
OF	.23	.23	.23	.35				
IF	.29	.25	.44	.37				

LAKE 223 Ca (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	2.56	2.88	3.01	2.45		2.28		2.53
4	2.33	2.57	2.60	2.34				2.43
8	2.42	2.67	2.74	2.66				2.73
10								
11								
12	2.47	3.04	3.14	3.03				2.98
13				4.31				
14	3.99	4.61	4.76					3.13
OF				2.56	2.28	2.29	2.38	2.48
IF				1.70	1.63	1.91	2.38	1.87

DEPTH(m)	DAY #							
	163	170	177	184	191	198	205	212
EPI		2.57		2.35		2.29		2.11
4				2.35				2.20
8				2.63				2.58
10								
11								
12				3.01				3.04
13								
14				3.17				
OF	2.35	2.41	2.35	2.35	2.35	2.34	2.34	2.29
IF	1.86	2.08	1.97	2.08	1.91	2.01	1.87	1.73

DEPTH(m)	DAY #							
	219	226	233	240	247	254	261	268
EPI		2.20		2.54		2.70		2.65
4				2.65				2.54
8				2.92				2.54
10				3.31				3.14
11				3.20				2.98
12				4.13				4.08
13				3.91				4.46
14				4.24				4.69
OF	2.15	2.20	2.15	2.59	2.70	2.70	2.54	2.49
IF	1.83	1.97	1.92	2.26	2.31	2.43	2.15	2.04

DEPTH(m)	DAY #							
	275	282	289	296	339			
EPI		2.49		2.49	3.00			
4				2.49	2.70			
8				2.55	2.75			
10				2.43	2.70			
11				2.49	2.70			
12				2.49	2.70			
13				2.49	2.60			
14				4.99	2.65			
OF	2.65	2.55	2.43	2.55				
IF	2.15	1.97	2.02	2.26				

LAKE 223 Mg (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	.70	.64	.54	.53		.50		.53
4	.63	.57	.50	.53				.53
8	.64	.58	.50	.54				.56
10								
11								
12	.62	.66	.56	.58				.60
13				.72				
14	.64	.68	.60					.63
OF				.53	.51	.50	.53	.54
IF				.40	.42	.46	.53	.44

	163	170	177	184	191	198	205	212
EPI		.56		.44		.54		.52
4				.45				.52
8				.51				.56
10								
11								
12				.54				.66
13								
14				.58				
OF	.53	.50	.44	.45	.47	.55	.55	.54
IF	.44	.45	.40	.42	.40	.49	.46	.45

	219	226	233	240	247	254	261	268
EPI		.54		.55		.55		.56
4				.56				.56
8				.56				.55
10				.64				.64
11				.66				.70
12				.72				.70
13				.70				.71
14				.66				.73
OF	.52	.53	.51	.56	.55	.53	.59	.50
IF	.47	.49	.48	.51	.51	.51	.50	.45

	275	282	289	296	339
EPI		.56		.55	1.03
4				.58	.63
8				.55	.63
10				.55	.61
11				.57	.58
12				.57	.57
13				.57	.55
14				.80	.56
OF	.59	.59	.59	.57	
IF	.50	.50	.51	.54	

LAKE 223 Mn (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	155
EPI	.04	.05	.05	.07		.07		
4	.04	.03	.04	.07				
8	.04	.06	.08	.10				
10								
11								
12	.17	.26	.32	.21				
13				.54				
14	.69	.78	.80					
OF				.07	.03	.07	.07	
IF				.03	< .01	.03	.03	

	163	170	177	184	191	198	205	212
EPI		.03		.05		.02		.02
4				.03				.02
8				.08				< .02
10								
11								
12				.26				.42
13								
14				.31				
OF	.03	.03	.03	.05	< .02	< .02	.02	.02
IF	< .02	< .02	< .02	.02	< .02	< .02	.02	< .02

	219	226	233	240	247	254	261	268
EPI		.03		.02		.03		.03
4				.02				.03
8				< .02				.03
10				.31				.46
11				.49				.72
12				.56				.71
13				.56				.79
14				.66				.89
OF	.02	.05	.03	.02	.03	.03	.02	.03
IF	< .02	.02	.02	< .02	.02	< .02	< .02	.02

	275	282	289	296	339
EPI		.03		.06	.06
4				.08	.06
8				.08	.06
10				.08	.08
11				.06	.10
12				.06	.18
13				.08	.27
14				1.16	.27
OF	.03	.03	.05	.05	
IF	< .02	< .02	.02	.02	

LAKE 223 Fe (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	< .04	.04	.06	.31		< .04		< .04
4	< .04	< .04	.03	< .04				< .04
8	< .04	.04	.09	< .04				.08
10								
11								
12	.11	.44	2.11	.08				.08
13				13.90				
14	19.20	25.70	26.50					1.17
OF				< .04	.08	< .04	.08	.04
IF				.08	.12	.12	.16	.08

	163	170	177	184	191	198	205	212
EPI		< .04		.04		< .04		< .04
4				< .04				< .04
8				< .04				< .04
10								
11								
12				.97				2.05
13								
14				4.86				
OF	.04	.04	.08	.08	< .04	.08	< .04	< .04
IF	.08	.08	.04	.23	.04	.08	< .04	.08

	219	226	233	240	247	254	261	268
EPI		< .04		< .04		< .04		< .04
4				< .04				< .04
8				< .04				< .04
10				< .04				.04
11				.04				.08
12				8.20				9.55
13				8.75				15.00
14				13.10				17.60
OF	< .04	< .04	< .04	< .04	.04	.04	.04	< .04
IF	.04	.11	.08	.08	.08	.08	.04	.13

	275	282	289	296	339
EPI		.08		.08	< .04
4				.08	< .04
8				.08	< .04
10				.08	.04
11				.08	.04
12				.08	.16
13				.13	.24
14				28.70	.20
OF	< .04	< .04	.04	.08	
IF	.13	.04	.17	.34	

LAKE 223 Ferrous-Fe (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	< .01	< .01	< .01	.01				< .01
4	< .01	< .01	.01	.01				< .01
8	< .01	< .01	.01	< .01				< .01
10								
11								
12	< .01	.08	2.57	.02				.04
13				14.60				
14	19.60	26.80	28.10					1.40
OF				.01				.01
IF				.03				.02

	163	170	177	184	191	198	205	212
EPI				< .01				.01
4				< .01				< .01
8				.01				.01
10								
11								
12				.83				3.40
13								
14				4.71				
OF				.02				.02
IF				.05				.06

	219	226	233	240	247	254	261	268
EPI				< .01				< .01
4				< .01				< .01
8				< .01				< .01
10				.01				.01
11				.06				.08
12				8.90				9.97
13				8.81				16.40
14				13.80				19.50
OF				.01				.01
IF				.05				.04

	275	282	289	296	339
EPI				.02	.01
4				.02	.01
8				.02	.01
10				.03	.01
11				.03	.03
12				.03	.06
13				.18	.08
14				34.10	19.00
OF				.03	
IF				.15	

LAKE 223 Ferric-Fe (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	.03	< .01	< .01	< .01				.01
4	.03	< .01	.01	< .01				< .01
8	.02	< .01	.02	.01				< .01
10								
11								
12	.05	.11	.08	.05				.10
13				< .01				
14	< .01	< .01	< .01					.23
OF				< .01				< .01
IF				< .01				< .01

DEPTH(m)	DAY #							
	163	170	177	184	191	198	205	212
EPI				.01				< .01
4				.01				< .01
8				.01				.01
10								
11								
12				.33				.15
13								
14				< .01				
OF				< .01				< .01
IF				.02				< .01

DEPTH(m)	DAY #							
	219	226	233	240	247	254	261	268
EPI								
4								
8								
10								
11								
12								
13								
14								
OF								
IF								

DEPTH(m)	DAY #					
	275	282	289	296	339	
EPI						
4						
8						
10						
11						
12						
13						
14						
OF						
IF						

LAKE 223 Susp Fe (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	20	< 1	19	48		57		15
4	37	40	21	77				19
8	63	31	76	92				68
10								
11								
12	474	1042	505	516				727
13				477				
14	113	1297	766					101
OF				42	55	45	29	18
IF				18	27	19	33	12

DEPTH(m)	DAY #							
	163	170	177	184	191	198	205	212
EPI		13		8		24		26
4				12				12
8				56				56
10								
11								
12				165				165
13								
14				395				
OF	17	15	6	20	12	19	36	26
IF	12	49	12	37	19	37	31	50

DEPTH(m)	DAY #							
	219	226	233	240	247	254	261	268
EPI		18		24		18		31
4				32				31
8				36				35
10				140				684
11				885				472
12								965
13				220				105
14				669				48
OF	33	26	29	32	14	31	33	190
IF	56	68	38	50	37	43	30	38

DEPTH(m)	DAY #					
	275	282	289	296	339	
EPI		63		205		
4						
8						
10						
11				194		
12				189		
13				258		
14				100		
OF	29	40	62	93		
IF	26	26	25	145		

LAKE 223 SRSi (mg/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	1.530	1.520	1.540	1.520		1.510		1.510
4	1.420	1.430	1.480	1.550				1.530
8	1.540	1.580	1.730	1.750				1.670
10								
11								
12	2.190	2.320	2.510	2.100				2.110
13				3.860				
14	4.270	5.110	5.090					2.270
OF				1.490	1.440	1.490	1.380	1.490
IF				.350	.268	.230	.534	.363

	163	170	177	184	191	198	205	212
EPI		1.480		1.400		1.380		1.320
4				1.430				1.320
8				1.490				1.190
10								
11								
12				2.140				2.150
13								
14				2.380				
OF	1.490	1.480	1.430	1.420	1.440	1.360	1.410	1.320
IF	.274	.245	.305	.337	.322	.362	.370	.374

	219	226	233	240	247	254	261	268
EPI		1.310		1.210		1.200		1.270
4				1.200				1.260
8				1.070				1.270
10				1.620				1.900
11				1.910				2.180
12				2.430				2.450
13				2.440				2.980
14				2.890				3.240
OF	1.320	1.310	1.350	1.290	1.260	1.210	1.270	1.310
IF	.331	.421	.390	.462	.360	.379	.433	.393

	275	282	289	296	339
EPI		1.300		1.340	1.500
4				1.330	1.500
8				1.310	1.520
10				1.310	1.650
11				1.310	1.950
12				1.330	2.420
13				1.320	2.640
14				3.700	2.670
OF	1.300	1.260	1.360	1.340	
IF	.429	.457	.716	.895	

LAKE 223 Chl-a (ug/L) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	3.8	1.2	1.3	2.4		2.6		1.0
4	1.7	1.0	1.0	3.4				1.3
8	1.6	1.0	.9	5.5				7.9
10								
11								
12	2.8	4.0	10.4	12.7				12.0
13				11.0				
14	27.1	19.0	13.6					13.3
OF								
IF								

	163	170	177	184	191	198	205	212
EPI		1.4		1.9		1.2		1.0
4				2.8				1.2
8				11.3				9.1
10								
11								
12				19.2				35.9
13								
14				18.7				
OF								
IF								

	219	226	233	240	247	254	261	268
EPI		1.5		1.6		2.3		2.2
4				1.9				2.5
8				6.9				2.5
10				16.1				8.1
11				41.3				35.6
12				46.8				48.8
13				46.9				58.7
14				51.7				69.3
OF								
IF								

	275	282	289	296	339
EPI		3.3		3.7	8.5
4				4.1	3.1
8				4.1	1.8
10				4.1	2.1
11				4.4	2.8
12				4.2	4.6
13				4.6	6.1
14				46.8	6.3
OF					
IF					

LAKE 223 Colour (abs425nm) 1978

DEPTH(m)	DAY #							
	011	046	074	128	135	142	149	156
EPI	.018	.020	.019	.031		.032		.033
4	.017	.022	.022	.037				.069
8	.027	.022	.018	.030				.046
10								
11								
12	.042	.070	.088	.029				.037
13				1.380				
14	1.600	2.000	2.570					.094
OF				.041	.035	.035	.030	.039
IF				.060	.048	.070	.189	.081

	163	170	177	184	191	198	205	212
EPI		.033		.026		.027		.029
4				.033				.033
8				.028				.033
10								
11								
12				.139				.268
13								
14				.458				
OF	.039	.035	.035	.034	.039	.029	.029	.033
IF	.083	.094	.106	.102	.089	.092	.084	.085

	219	226	233	240	247	254	261	268
EPI		.032		.023		.025		.018
4				.029				.019
8				.026				.018
10				.030				.027
11				.039				.047
12				.735				.903
13				.944				1.520
14				1.422				1.797
OF	.025	.029	.024	.033	.029	.025	.022	.023
IF	.070	.095	.080	.091	.068	.071	.081	.058

	275	282	289	296	339
EPI		.013		.019	.014
4				.018	.014
5				.017	.014
10				.019	.019
11				.019	.029
12				.018	.040
13				.019	.045
14				2.530	.048
OF	.024	.014	.022	.029	
IF	.072	.048	.061	.065	

Appendix 6

1979 Water chemistry data

LAKE 223 Temp (C) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI				7.39		13.50		18.32
4				7.20				16.58
8				6.21				7.14
10				5.50				6.08
11				5.35				5.84
12				5.28				5.64
13				5.21				5.60
14				5.13				5.47
OF				12.00	15.50	13.00	14.00	17.50
IF				12.50	12.50	13.50	12.50	17.00

	176	183	190	197	204	211	218	225
EPI		20.50		21.19		22.50		19.48
4				21.18				19.50
8				8.74				11.23
10				6.70				8.21
11				6.32				6.39
12				5.96				6.19
13				5.85				6.01
14				5.77				5.89
OF	17.00	19.50	21.00	20.50	22.00	21.00	18.50	17.00
IF	16.50	18.50	19.80	16.00	21.50	21.00	18.00	16.00

	232	239	246	253	260	267	274	281
EPI		18.20		16.57		14.40		11.25
4				15.57				11.29
8				16.45				11.30
10				9.42				11.30
11				7.84				11.29
12				6.85				8.95
13				6.41				6.87
14				6.23				6.67
OF	17.50	16.50	14.00	11.50	19.00	12.00	9.00	6.50
IF	19.50	14.50	12.50	9.80	14.00	9.30	7.50	5.20

	288	295	297	302	350
EPI		8.20	7.52		
4			7.58		
8			7.58		
10			7.59		
11			7.57		
12			7.57		
13			7.57		
14			7.57		
OF	4.20	5.00	2.90	4.30	
IF	4.20	4.20	2.80	3.50	

LAKE 223 Cond (uS/cm) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	31	33	32	28		31		30
4		30	30	28				29
8	30	31	32	29				28
10	33	33	33	28				29
11	33	32	32	29				29
12	33	32	42	30				29
13	48	68	78	29				32
14	163	190	217	67				61
OF				27	30	30	29	29
IF				17	22	25	21	20

	176	183	190	197	204	211	218	225
EPI		29		29		29		31
4				29				31
8				27				28
10				27				28
11				28				29
12				34				34
13				47				64
14				54				72
OF	29	29	29	31	29	29	29	32
IF	20	19	20	19	19	21	21	21

	232	239	246	253	260	267	274	281
EPI		30		30		32		30
4				31				30
8				30				30
10				27				30
11				28				30
12				51				51
13				66				71
14				72				97
OF	31	30	31	31	31	33	33	32
IF	25	24	27	44	47	47	52	46

	288	295	297	302	350
EPI		31	32		31
4			32		31
8			32		31
10			32		31
11			32		33
12			32		33
13			32		33
14			32		124
OF	35	35	37	36	
IF	46	45	49	46	

LAKE 223 pH 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	5.84	5.73	5.64	5.94		5.60		5.59
4		5.68	5.52	5.91				5.68
8	5.61	5.36	5.23	5.73				5.91
10	5.42	5.27	5.24	5.71				5.61
11	5.48	5.32	5.61	5.72				5.52
12	5.55	5.58	6.17	5.72				5.61
13	6.42	6.79	6.87	5.71				5.81
14	6.99	6.90	6.92	6.30				6.41
OF				5.91	5.72	5.60	5.61	5.62
IF				6.32	6.11	6.17	6.11	6.39

	176	183	190	197	204	211	218	225
EPI		5.70		5.49		5.81		5.67
4				5.58				5.60
8				5.89				6.11
10				5.79				6.09
11				5.62				5.92
12				5.90				6.00
13				6.12				6.59
14				6.29				6.61
OF	5.70	5.59	5.51	5.60	5.62	5.65	5.69	5.62
IF	6.12	6.19	6.11	6.20	6.20	6.22	6.29	6.32

	232	239	246	253	260	267	274	281
EPI		5.61		5.66		5.59		5.69
4				5.56				5.63
8				5.65				5.66
10				6.19				5.67
11				5.91				5.69
12				6.80				6.42
13				6.58				6.47
14				6.56				6.50
OF	5.66	5.67	5.87	5.89	6.00	6.00	6.02	6.19
IF	6.33	6.41	6.38	6.61	6.49	6.51	6.50	6.51

	288	295	297	302	350
EPI		5.45	5.53		5.95
4			5.52		5.80
8			5.49		5.86
10			5.51		5.64
11			5.52		5.66
12			5.56		5.62
13			5.54		5.66
14			5.55		6.94
OF	6.10	6.11	6.11	6.19	
IF	6.50	6.49	6.51	6.53	

LAKE 223 Alkal (uEq/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	10	9	12	20		2		3
4	10	12	10	20				5
8	9	7	-1	19				27
10	11	3	6	16				26
11	18	2	42	23				31
12	28	35	206	27				58
13	288	671	834	29				112
14	1892	2394	2581	534				555
OF				18				
IF					93	97	94	98

	176	183	190	197	204	211	218	225
EPI		3		2		2		4
4				2				2
8				25				27
10				47				50
11				88				75
12				155				239
13				358				598
14				442				702
OF	5		5		5		8	
IF	89	91	99	90	105	105	108	109

	232	239	246	253	260	267	274	281
EPI		3		3		5		2
4				2				4
8				5				5
10				63				5
11				101				6
12				432				470
13								686
14				704				905
OF	11		20		37		52	
IF	147	130	167	322	351	368	396	354

	288	295	297	302	350
EPI			3		3
4			5		5
8			5		5
10			3		9
11			3		14
12			4		27
13			5		43
14			11		1449
OF	58			71	
IF	345	324	350	360	

LAKE 223 02 (mg/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	11.90		12.23	10.90				9.00
4	10.73	10.23	9.60	10.83				10.42
8	8.88	6.79	5.00	9.13				10.04
10	3.00	1.60	.83	8.55				6.75
11	2.09	1.30	.21	8.40				3.44
12	1.60	.47	< .01	7.80				.30
13	< .01	< .01	< .01	7.42				< .01
14	< .01	< .01	< .01	.22				< .01
OF								
IF								

	175	183	190	197	204	211	218	225
EPI				7.96				8.17
4				7.35				8.10
8				10.57				11.58
10				6.92				9.00
11				.70				1.79
12				< .01				< .01
13				< .01				< .01
14				< .01				< .01
OF								
IF								

	232	239	246	253	260	267	274	281
EPI		1.80		8.60				9.20
4				8.87				9.00
8				8.67				9.13
10				9.01				8.70
11				< .01				8.98
12				< .01				< .01
13				< .01				< .01
14				< .01				< .01
OF								
IF								

	288	295	297	302	350
EPI			10.17		12.71
4			10.12		10.60
8			10.11		10.55
10			10.18		7.52
11			9.94		3.59
12			10.16		1.81
13			10.12		.73
14			10.12		< .01
OF					
IF					

LAKE 223 NH3-N (ug/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	57	60	65	16		15		16
4	66	67	65	15				16
8	100	74	59	24				17
10	193	118	93	81				18
11	242	140	250	56				33
12	308	338	510	82				150
13	770	1160	1560	108				370
14	3250	4630	5770	2010				950
OF				22	13	22	16	34
IF				19	6	25	25	9

	176	183	190	197	204	211	218	225
EPI		13		4		13		17
4				19				10
8				5				15
10				3				18
11				20				24
12				278				242
13				565				910
14				735				1230
OF	25	27	18	15	30	16	17	19
IF	21	27	34	6	11	15	23	19

	232	239	245	253	260	267	274	281
EPI		10		12		9		22
4				12				8
8				12				15
10				13				18
11				11				15
12				445				510
13				945				1300
14				1200				2480
OF	24	18	19	15	19	20	20	30
IF	31	16	22	26	19	16	42	41

	288	295	297	302	350
EPI		19	16		29
4			18		43
8			23		43
10			23		93
11			20		275
12			23		370
13			18		450
14			24		2420
OF	30	26	25	54	
IF	36	26	46	45	

LAKE 223 NO3-N (ug/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	2	8	11	47		< 1		< 1
4	1	12	33	48				< 1
8	13	105	180	58				< 6
10	145	228	222	59				6
11	146	212	2	58				20
12	133	5	7	56				6
13	9	15	14	55				18
14	25	18	23	56				14
OF				46	1	2	2	3
IF				18	12	35	20	9

	176	183	190	197	204	211	218	225
EPI		< 1		2		2		< 1
4				2				< 1
8				2				< 1
10				2				1
11				2				1
12				9				5
13				11				11
14				13				11
OF	8	3	2	3	4	5	21	2
IF	15	10	9	8	7	13	7	11

	232	239	246	253	260	267	274	281
EPI		< 1		< 1		< 1		3
4				< 1				1
8				< 1				3
10				< 1				6
11				< 1				3
12				8				11
13				9				14
14				10				19
OF	6	1	4	2	3	6	12	21
IF	28	20	24	31	24	35	84	59

	288	295	297	302	350
EPI		3	3		9
4			3		10
8			4		10
10			3		19
11			3		49
12			3		63
13			3		38
14			3		20
OF	21	26	22	30	
IF	55	92	73	71	

LAKE 223 TDN (ug/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	270	300	245	210		260		210
4	245	255	260	220				220
8	305	340	380	220				205
10	495	510	465	240				200
11	560	520	440	265				250
12	610	580	810	295				390
13	1080	1740	2160	295				630
14	4900	6330	7150	2350				1410
OF				235	220	205	210	230
IF				120	195	295	215	190

	176	183	190	197	204	211	218	225
EPI		205		205		195		170
4				196				195
8				186				195
10				192				215
11				200				230
12				530				510
13				920				1270
14				1100				1570
OF	275	220	245	205	225	215	215	190
IF	200	235	280	220	220	250	250	220

	232	239	246	253	260	267	274	281
EPI		180		210		195		220
4				190				220
8				190				215
10				230				225
11				280				225
12				710				870
13				1360				1940
14				1650				3130
OF	215	184	185	175	162	200	188	245
IF	290	245	265	235	194	210	365	255

	288	295	297	302	350
EPI		170	190		240
4			220		250
8			225		255
10			205		355
11			210		550
12			225		680
13			215		770
14			215		3340
OF	210	205	180	215	
IF	235	290	260	255	

LAKE 223 Susp N (ug/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	18	26	11	128		107		
4	33	31	27	139				157
8	37	42	41	103				164
10	57	66	44	122				181
11	68	66	166	122				162
12	101	185	449	128				301
13	312	891	1042	155				507
14	1294	1203	975	471				1504
OF				150	101	44	52	134
IF				30	27	27	14	60

	176	183	190	197	204	211	218	225
EPI		71		25		54		51
4				36				61
8				82				118
10				258				236
11				301				594
12				414				728
13				452				762
14				652				830
OF	77	44	49	25	16	43	33	38
IF	27	63	41	27	33	46	56	77

	232	239	246	253	260	267	274	281
EPI		25		39		58		88
4				40				109
8				35				96
10				171				121
11				431				101
12				600				477
13				580				778
14				630				1244
OF	15	25	20	20	25	30	35	74
IF	57	25	33	46	15	33	33	50

	288	295	297	302	350
EPI		74	74		123
4			70		97
8			74		42
10			73		37
11			18		51
12			54		98
13			68		149
14			62	>	1100
OF	23	39	9	78	
IF	24	50	50	217	

LAKE 223 TDP (ug/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	2	2	2	2		1		3
4	2	2	2	2				3
8	2	3	2	2				3
10	4	3	4	3				3
11	3	6	3	2				3
12	3	4	5	3				4
13	9	9	21	3				4
14	26	76	350	47				10
OF				2	3	2	3	3
IF				2	4	4	5	3

	176	183	190	197	204	211	218	225
EPI		2		2		2		2
4				2				2
8				2				3
10				4				5
12				6				8
13				10				15
14				12				15
OF	3	3	3	3	3	3	2	3
IF	3	4	4	4	4	5	4	6

	232	239	246	253	260	267	274	281
EPI		2		2		2		2
4				2				2
8				2				2
10				5				2
11				8				3
12				10				9
13				12				11
14				13				16
OF	2	2	2	3	3	3	3	3
IF	6	5	6	5	5	4	9	4

	288	295	297	302	350
EPI		2	2		3
4			2		3
8			2		3
10			2		3
11			2		3
12			2		4
13			2		4
14			2		23
OF	3	3	2	2	
IF	4	5	4	4	

LAKE 223 Susp P (ug/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	5	2	2	5		4		4
4	3	2	3	5				4
8	4	3	4	5				9
10	8	9	8	5				13
11	14	12	37	5				13
12	17	44	73	6				34
13	109	164	137	8				53
14	381	233	176	94				170
OF				3	3	3	2	9
IF				2	2	2	3	2

	176	183	190	197	204	211	218	225
EPI		3		1		2		2
4				1				2
8				6				9
10				17				16
11				28				47
12				44				30
13				73				94
14				82				108
OF	6	5	2	1	2	2	2	2
IF	3	5	2	2	3	3	3	8

	232	239	246	253	260	267	274	281
EPI		2		1		2		4
4				1				4
8				2				5
10				13				4
11				39				5
12				74				45
13				88				80
14				96				160
OF	3	2	1	1	2	2	3	2
IF	4	3	5	3	7	5	7	4

	288	295	297	302	350
EPI		6	5		7
4			5		4
8			5		4
10			5		5
11			5		8
12			5		11
13			5		22
14			6		362
OF	2	3	2	4	
IF	3	3	3	20	

LAKE 223 DIC (uM/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	44	51	57	53		21		25
4		70	76	55				23
8	76	152	192	93				102
10	254	295	305	110				222
11	294	315	360	124				278
12	310	380	465	141				388
13	535	765	950	150				434
14	1810	2390	2740	940				690
OF				47	39	33	36	43
IF				122	212	244	210	188

	176	183	190	197	204	211	218	225
EPI		22		26		22		19
4				35				21
8				41				33
10				192				152
11				376				385
12				500				535
13				650				805
14				700				900
OF	42	55	49	51	73	58	60	40
IF	191	208	214	165	214	212	200	200

	232	239	246	253	260	267	274	281
EPI		19		20		29		29
4				21				30
8				30				20
10				150				23
11				438				28
12				730				810
13				950				1030
14				1030				1400
OF	87	63	90	99	66	152	168	114
IF	268	264	339	530	600	635	645	640

	288	295	297	302	350
EPI		43	41		12
4			41		56
8			39		62
10			32		138
11			35		244
12			30		300
13			33		350
14			30		1470
OF	162	178	152	195	
IF	600	525	650	615	

LAKE 223 DOC (uM/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	360	360	320	385		375		330
4	300	360	295	355				315
8	325	360	290	355				320
10	320	280	275	360				290
11	285	295	265	360				295
12	345	335	395	345				285
13	485	740	800	355				355
14	1710	2130	2130	780				610
OF				345	370	355	335	310
IF				285	315	490	330	260

	176	183	190	197	204	211	218	225
EPI		380		350		365		335
4				335				340
8				345				380
10				390				470
11				325				440
12				420				530
13				560				830
14				640				930
OF	350	390	385	320	330	340	345	330
IF	270	355	365	310	340	370	365	365

	232	239	246	253	260	267	274	281
EPI		265		295		335		390
4				285				360
8				275				390
10				395				395
11				425				410
12				650				650
13				760				940
14				830				1030
OF	295	265	275	230	230	265	320	285
IF	340	320	395	315	390	385	710	405

	288	295	297	302	350
EPI		310	340		385
4			335		375
8			350		355
10			325		360
11			350		345
12			325		350
13			345		340
14			340		1390
OF	250	235	260	220	
IF	350	350	345	325	

LAKE 223 Susp C (ug/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	440	410	290	970		1000		
4	380	340	480	930				1060
8	450	510	430	800				1510
10	620	720	740	790				1570
11	780	690	1450	860				1160
12	940	1660	2780	960				2150
13	3570	4480	5320	930				3320
14	8950	7240	6410	3720				7370
OF				960	880	540	540	1660
IF				280	250	300	310	410

	176	183	190	197	204	211	218	225
EPI		540		290		280		340
4				290				420
8				1000				1000
10				2050				2120
11				1890				4170
12				2470				8300
13				2650				4260
14				3390				4580
OF	790	520	350	190	260	270	200	270
IF	370	390	210	250	260	300	360	570

	232	239	246	253	260	267	274	281
EPI		270		370		360		760
4				370				710
8				390				660
10				1660				740
11				3680				800
12				4070				2910
13				4640				4490
14				4700				7580
OF	410	170	190	260	220	290	360	600
IF	350	270	390	620	370	370	400	730

	288	295	297	302	350
EPI		720	710		1610
4			700		850
8			760		520
10			850		560
11			740		770
12			650		1070
13			680		1540
14			660		3810
OF	320	320	210	660	
IF	390	380	380	2350	

LAKE 223 Cl (mg/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	.8	.2	.9					
4	.4	.4	.6					
8	.4	.4	.6					
10	.4	.4	.8					
11	.4	.4	1.0					
12	.4	.4	.8					
13	.4	.6	.8					
14	.6	.6	.8					
OF					.6		.6	
IF					.6		.8	

	176	183	190	197	204	211	218	225
EPI		< .1		< .1		.4		< .1
4				< .1				< .1
8				< .1				< .1
10				< .1				< .1
11				< .1				.1
12				.2				.3
13				.3				.4
14				.3				.5
OF		< .1	< .1	< .1	< .1	.4	.3	< .1
IF		.4	.5	.4	.2	.6	.5	.3

	232	239	246	253	260	267	274	281
EPI		< .1		< .1		< .1		< .1
4				< .1				< .1
8				< .1				< .1
10				< .1				< .1
11				.1				< .1
12				.4				.6
13				.7				.9
14				.7				.9
OF	< .1	< .1	< .1	< .1	.5	< .1	< .1	.6
IF	.4	.3	.3	.4	.7	.6	.8	.9

	288	295	297	302	350
EPI		< .1	.5		1.2
4			.5		1.6
8			.6		1.8
10			.5		1.2
11			.5		1.4
12			.5		1.6
13			.5		.6
14			.6		.8
OF	< .1	< .1	.7	< .1	
IF	.7	.6	.9	.7	

LAKE 223 SO4 (mg/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	10.0	10.0	10.2	9.4		10.4		11.0
4	9.4	8.8	9.2	9.4				10.8
8	9.6	9.0	9.2	9.4				9.8
10	9.4	8.6	8.8	9.4				10.0
11	9.2	8.6	8.6	9.4				9.8
12	9.0	8.2	7.8	9.4				8.8
13	6.8	3.2	.8	9.4				10.0
14	1.2	.8	.8	7.0				7.9
OF				9.6	8.8	10.4	8.8	11.2
IF				3.8	2.8	5.0	2.8	5.0

	176	183	190	197	204	211	218	225
EPI		11.2		11.0		10.8		10.8
4				11.2				10.9
8				9.6				9.1
10				8.9				8.4
11				8.2				7.3
12				7.3				6.3
13				6.3				3.3
14				5.5				2.7
OF	11.0	10.9	12.3	10.8	11.2	10.7	10.4	10.8
IF	5.1	3.7	3.3	3.3	3.3	3.1	3.1	3.1

	232	239	246	253	260	267	274	281
EPI		10.9		10.8		11.0		10.3
4				10.9				10.3
8				10.8				10.4
10				7.5				10.4
11				6.2				10.7
12				3.7				2.3
13				1.1				1.0
14				1.2				.9
OF	11.7	10.8	10.5	10.7	10.7	10.3	9.7	10.2
IF	3.1	3.3	2.9	3.4	3.4	3.1	3.0	2.8

	288	295	297	302	350
EPI		11.0	11.1		10.8
4			11.0		10.6
8			11.0		10.6
10			11.3		10.8
11			11.1		10.4
12			11.1		10.8
13			11.3		10.5
14			11.2		1.7
OF	10.2	10.6	10.8	10.6	
IF	3.1	4.2	3.3	3.1	

LAKE 223 H2S-S (mg/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI								
4								
8		< .01						
10		< .01	< .01	< .01				
11		< .01		< .01				< .01
12	< .01	.03	< .01	< .01				< .01
13	< .01	.05	.11	< .01				< .01
14	.02	.03	< .01	< .01				.03
OF								
IF								

	176	183	190	197	204	211	218	225
EPI								
4								
8								
10								< .01
11				< .01				< .01
12				< .01				< .01
13				.02				< .01
14				< .01				< .01
OF								
IF								

	232	239	246	253	260	267	274	281
EPI								
4								
8								
10				< .01				< .01
11				.01				< .01
12				.26				.53
13				.44				.43
14				.29				.28
OF								
IF								

	288	295	297	302	350
EPI					
4					
8					
10					
11					
12					
13					
14					
OF					
IF					

LAKE 223 Na (mg/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	1.00	1.19	1.17	1.06		.94		.95
4	.93	1.05	1.00	1.12				.97
8	.95	1.10	1.11	1.09				.95
10	.95	1.09	1.08	1.05				.99
11	.95	1.16	1.03	1.03				1.00
12	.97	1.17	1.03	1.09				1.00
13	.97	1.12	1.06	1.06				.99
14	1.06	1.23	1.17	1.23				1.03
OF				1.08	.92	.88	.90	.97
IF				.87	.77	.90	.79	.76

	176	183	190	197	204	211	218	225
EPI		.91		.97		1.05		1.05
4				.97				1.03
8				1.06				1.07
10				1.14				1.09
11				1.07				1.06
12				1.04				1.24
13				1.06				1.26
14				1.12				1.26
OF	.91	.90	1.01	1.04	.95	.99	1.07	1.13
IF	.72	.70	.94	.83	.75	.89	.84	.94

	232	239	246	253	260	267	274	281
EPI		.99		1.39		.99		.97
4				1.13				1.00
8				1.17				1.05
10				1.25				1.05
11				1.46				1.08
12				1.34				1.05
13				1.57				1.19
14				1.40				1.58
OF	1.15	.95	1.26	1.31	1.46	1.03	1.02	1.11
IF	1.13	.88	1.25	1.90	2.30	1.89	1.75	2.01

	288	295	297	302	350
EPI		1.08	1.00		1.68
4			1.02		1.07
8			.97		1.07
10			.94		1.13
11			.97		.99
12			1.09		1.02
13			.96		1.00
14			.96		1.22
OF	1.14	1.14	1.39	1.08	
IF	1.85	1.87	2.09	1.96	

LAKE 223 K (mg/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	.32	.41	.31	.30		.32		.33
4	.28	.35	.27	.32				.31
8	.30	.37	.27	.32				.33
10	.30	.37	.29	.32				.33
11	.30	.37	.31	.32				.33
12	.32	.39	.33	.32				.37
13	.34	.43	.45	.32				.37
14	.57	.72	.69	.48				.45
OF				.32	.24	.29	.33	.31
IF				.32	.26	.36	.37	.27

	176	183	190	197	204	211	218	225
EPI		.46		.28		.35		.35
4				.29				.36
8				.26				.33
10				.30				.36
11				.34				.40
12				.35				.46
13				.38				.48
14				.42				.52
OF	.46	.43	.25	.28	.30	.35	.33	.35
IF	.37	.43	.26	.24	.30	.29	.27	.29

	232	239	246	253	260	267	274	281
EPI		.31		.34		.32		.34
4				.34				.34
8				.32				.34
10				.34				.34
11				.39				.34
12				.46				.48
13				.46				.54
14				.48				.56
OF	.36	.33	.33	.39	.42	.36	.42	.38
IF	.31	.29	.27	.38	.54	.46	1.28	.54

	288	295	297	302	350
EPI		.32	.34		.36
4			.36		.30
8			.32		.30
10			.34		.28
11			.34		.28
12			.34		.30
13			.34		.28
14			.34		.42
OF	.32	.38	.36	.38	
IF	.54	.57	.49	.51	

LAKE 223 Ca (mg/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	2.59	2.95	2.51	2.49		2.33		2.54
4	2.54	2.55	2.70	2.39				2.43
8	2.45	2.65	2.70	2.55				2.38
10	2.54	2.75	2.70	2.55				2.32
11	2.59	2.60	2.37	2.55				2.43
12	2.73	2.50	2.80	2.55				2.59
13	2.73	3.15	3.43	2.55				2.70
14	4.79	5.45	5.89	3.66				2.97
OF				2.49	2.23	2.28	2.49	2.43
IF				1.70	1.86	2.44	2.00	1.78

	176	183	190	197	204	211	218	225
EPI		2.68		2.54		2.54		2.63
4				2.59				2.71
8				2.64				2.67
10				2.64				2.75
11				2.78				2.84
12				2.83				3.11
13				2.97				3.37
14				3.12				3.69
OF	2.68	2.64	2.68	2.64	2.73	2.76	2.76	2.71
IF	1.97	2.06	2.06	1.97	2.24	2.14	2.28	2.28

	232	239	246	253	260	267	274	281
EPI		2.58		2.71		2.52		2.47
4				2.57				2.52
8				2.66				2.65
10				2.75				2.61
11				2.71				2.61
12				3.27				3.17
13				3.36				3.36
14				3.69				4.11
OF	2.71	2.80	2.89	2.99	3.03	3.17	3.22	3.31
IF	2.84	2.54	3.02	5.41	5.55	5.60	5.97	5.60

	288	295	297	302	350
EPI		2.47	2.66		2.91
4			2.66		2.80
8			2.66		2.75
10			2.61		2.69
11			2.61		2.80
12			2.61		2.75
13			2.71		2.80
14			2.75		4.79
OF	3.31	3.50	3.41	3.41	
IF	5.18	5.23	5.27	5.65	

LAKE 223 Mg (mg/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	.60	.62	.59	.57		.57		.58
4	.58	.57	.57	.54				.56
8	.56	.59	.58	.57				.53
10	.57	.59	.58	.57				.52
11	.57	.59	.58	.57				.55
12	.60	.62	.57	.57				.58
13	.58	.59	.55	.57				.58
14	.67	.76	.73	.67				.58
OF				.57	.54	.55	.55	.57
IF				.45	.49	.62	.50	.45

	176	183	190	197	204	211	218	225
EPI		.57		.54		.57		.58
4				.55				.61
8				.54				.59
10				.55				.62
11				.59				.62
12				.59				.65
13				.57				.64
14				.60				.67
OF	.56	.56	.57	.56	.58	.62	.62	.61
IF	.45	.47	.48	.43	.51	.52	.53	.53

	232	239	246	253	260	267	274	281
EPI		.58		.61		.55		.53
4				.56				.55
8				.58				.54
10				.58				.55
11				.61				.57
12				.63				.60
13				.62				.61
14				.66				.72
OF	.58	.62	.63	.62	.63	.63	.65	.66
IF	.62	.60	.66	.93	.95	.92	1.12	.97

	288	295	297	302	350
EPI		.52	.59		.63
4			.60		.60
8			.59		.61
10			.58		.59
11			.59		.58
12			.59		.57
13			.61		.58
14			.62		.75
OF	.66	.68	.70	.69	
IF	.93	.96	.94	.98	

LAKE 223 Mn (mg/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	.06	.06	.08	.05		.08		.06
4	.06	.04	.08	.08				.06
8	.06	.08	.14	.08				.08
10	.16	.17	.20	.08				.10
11	.20	.19	.26	.08				.13
12	.22	.26	.34	.09				.20
13	.40	.57	.66	.10				.29
14	1.13	1.19	1.24	.45				.42
OF				.06	.04	.05	.06	.08
IF				< .02	< .01	.03	< .01	.01

	176	183	190	197	204	211	218	225
EPI		.05		.05		.06		.06
4				.05				.06
8				.01				.02
10				.14				.05
11				.20				.33
12				.30				.53
13				.34				.56
14				.37				.63
OF	.05	.05	.05	.04	.04	.05	.05	.05
IF	< .01	< .01	< .01	< .01	< .01	< .02	.02	.02

	232	239	246	253	260	267	274	281
EPI		.04		.07		.09		.07
4				.07				.09
8				.07				.07
10				.09				.07
11				.52				.07
12				.64				.65
13				.57				.74
14				.71				.82
OF	.05	.03	.07	.06	.06	.07	.09	.04
IF	.03	< .01	.04	.06	.06	.06	.14	.03

	288	295	297	302	350
EPI		.11	.11		.12
4			.11		.12
8			.11		.11
10			.11		.14
11			.11		.15
12			.11		.18
13			.11		.20
14			.10		.63
OF	.07	.11	.10	.10	
IF	.03	.06	.06	.06	

LAKE 223 Fe (mg/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	.08	< .04	< .04	.04		.07		< .03
4	< .04	< .04	.07	.04				< .03
8	< .04	< .04	< .04	.04				.03
10	.08	.12	.07	.07				.03
11	.12	.16	.22	.14				.07
12	.20	.56	3.43	.18				.10
13	5.29	11.80	16.50	.25				2.06
14	36.30	47.60	60.50	13.70				8.58
OF				.04	.04	.07	< .03	.03
IF				< .04	.04	.19	< .03	.07

	176	183	190	197	204	211	218	225
EPI		.25		.03		.03		.16
4				< .03				.16
8				< .03				.21
10				.03				.24
11				.09				.35
12				1.83				2.60
13				5.24				9.64
14				6.19				11.10
OF	< .03	.06	< .03	.16	.03	.05	.11	.27
IF	.03	.03	.06	.09	.07	.11	.16	.38

	232	239	246	253	260	267	274	281
EPI		.29		.03		.03		.08
4				.03				.11
8				.03				.08
10				.05				.08
11				.24				.11
12				6.00				6.27
13				9.91				10.40
14				11.00				14.30
OF	.16	.35	.27	.08	.08	.05	.14	.11
IF	.32	.80	.51	.75	.67	.57	1.25	.82

	288	295	297	302	350
EPI		.03	.06		.03
4			.06		.03
8			.06		.03
10			.03		.10
11			.03		.16
12			.03		.20
13			.03		.29
14			.03		34.80
OF	.11	.10	.13	.16	
IF	.60	.61	.77	.48	

LAKE 223 Ferrous-Fe (mg/L) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI		.02	< .01	.05				.03
4		.01	< .01	.05				.03
8	.01	.01	< .01	.05				.04
10	.04	.04	.01	.07				.05
11	.07	.04	.03	.06				.07
12	.06	.08	4.00	.09				.16
13	4.08	12.90	15.90	.12				1.71
14	39.00	52.90	61.00	8.10				10.60
OF				.09				.05
IF				.05				.07

	176	183	190	197	204	211	218	225
EPI				.02				.01
4				.02				< .01
8				.03				.01
10				.04				.02
11				.07				.04
12				2.39				4.00
13				6.68				10.15
14				8.40				12.20
OF								
IF								

	232	239	246	253	260	267	274	281
EPI								.02
4								.02
8								.01
10				.04				.02
11				.06				.02
12				3.07				6.90
13				8.61				10.95
14				10.66				16.07
OF								.03
IF								.46

	288	295	297	302	350
EPI			< .01		< .01
4			< .01		< .01
8			< .01		< .01
10			< .01		.01
11			< .01		.02
12			< .01		.03
13			.01		.07
14			< .01		32.40
OF			.03		
IF			.46		

LAKE 223 SRSi (mg/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	1.600	1.660	1.580	1.600		1.570		1.510
4	1.510	1.530	1.490	1.610				1.540
8	1.620	1.730	1.810	1.640				1.650
10	2.150	2.150	2.180	1.570				1.810
11	2.290	2.200	2.420	1.720				1.910
12	2.370	2.450	2.650	1.760				2.090
13	2.970	3.280	3.670	1.940				2.230
14	3.970	6.630	7.320	3.590				2.520
OF				1.610	1.540	1.540	1.580	1.510
IF				.279	.263	.835	.360	.249

	176	183	190	197	204	211	218	225
EPI		1.500		1.420		1.220		1.180
4				1.420				1.190
8				1.590				1.460
10				1.900				1.930
11				2.050				2.180
12				2.210				2.390
13				2.380				2.750
14				2.460				2.930
OF	1.480	1.470	1.390	1.400	1.290	1.180	1.140	1.150
IF	.249	.255	.287	.303	.333	.383	.487	.523

	232	239	246	253	260	267	274	281
EPI		1.070		1.030		1.010		1.210
4				1.030				1.180
8				1.060				1.180
10				1.920				1.190
11				2.180				1.180
12				2.560				2.650
13				2.820				3.140
14				3.010				3.730
OF	1.140	1.070	1.060	.928	.897	.922	1.120	1.270
IF	1.120	1.020	1.810	5.070	5.220	5.350	4.980	5.600

	288	295	297	302	350
EPI		1.220	1.220		1.330
4			1.210		1.330
8			1.210		1.330
10			1.220		1.500
11			1.220		2.020
12			1.220		2.320
13			1.220		2.410
14			1.220		5.550
OF	1.470	1.520	1.490	1.590	
IF	5.460	5.080	5.600	5.650	

LAKE 223 Chl-a (ug/L) 1979

DEPTH(m) DAY #

	009	044	087	141	148	155	162	169
EPI	2.8	5.2	1.8	6.9		2.7		2.0
4	1.2	1.3	3.5	7.7				2.7
8	1.0	.8	1.1	8.8				23.0
10	1.9	1.6	1.3	9.3				23.3
11	2.5	2.6	9.1	8.9				19.4
12	3.4	13.5	19.0	9.6				24.9
13	19.2	26.3	15.3	9.0				19.5
14	32.9	29.1	14.3	8.3				42.0
OF								
IF								

	176	183	190	197	204	211	218	225
EPI		1.7		.5		1.2		1.3
4				.9				1.4
8				9.3				4.8
10				38.5				25.4
11				51.7				157.0
12				40.2				84.8
13				37.2				64.6
14				38.4				63.8
OF								
IF								

	232	239	246	253	260	267	274	281
EPI				1.0		1.2		5.3
4				1.1				5.6
8				1.7				5.6
10				17.7				6.0
11				74.8				10.0
12				67.0				37.8
13				70.5				58.5
14				71.1				61.9
OF								
IF								

	288	295	297	302	350
EPI		5.0	4.9		47.5
4			5.1		9.2
8			5.2		6.4
10			5.7		3.2
11			5.9		3.1
12			4.9		4.5
13			5.2		4.0
14			5.2		9.5
OF					
IF					

LAKE 223 Colour (abs425nm) 1979

DEPTH(m)	DAY #							
	009	044	087	141	148	155	162	169
EPI	.016	.016	.016	.031		.023		.019
4	.016	.019	.017	.031				.029
8	.017	.027	.017	.033				.024
10	.027	.027	.028	.047				.025
11	.027	.029	.048	.043				.038
12	.034	.056	.106	.049				.029
13	.237	.718	1.075	1.140				.145
14	3.430	8.300	8.675	.044				.812
OF				.045	.025	.027	.027	.029
IF				.045	.066	.151	.095	.073

	176	183	190	197	204	211	218	225
EPI		.025		.010		.013		.013
4				.013				.015
8				.017				.023
10				.026				.030
11				.029				.045
12				.157				.224
13				.470				.577
14				.648				.940
OF	.028	.028	.023	.019	.020	.020	.016	.023
IF	.061	.066	.064	.064	.066	.065	.071	.087

	232	239	246	253	260	267	274	281
EPI		.014		.020		.014		.021
4				.016				.022
8				.015				.023
10				.049				.023
11				.069				.022
12				.431				.383
13				.946				.804
14				1.067				1.161
OF	.015	.019	.027	.029	.029	.029	.035	.031
IF	.104	.103	.128	.164	.168	.133	.282	.156

	288	295	297	302	350
EPI		.019	.021		.026
4			.020		.023
8			.015		.021
10			.021		.026
11			.021		.030
12			.017		.036
13			.016		.047
14			.017		2.212
OF	.028	.034	.025	.030	
IF	.129	.119	.118	.099	

Appendix 7

1980 Water chemistry data

LAKE 223 Temp (C) 1980

DEPTH(m) DAY #

	023	057	078	126	133	140	156	161
EPI				14.32			18.19	
4				8.26			18.02	
8				6.24			8.17	
10				5.48			6.71	
11				5.41			6.38	
12				5.30			6.09	
13				5.28			5.84	
14				5.22			5.67	
OF				14.50	13.00	13.10	16.50	15.40
IF				13.00	12.20	12.60	12.80	10.00

	168	182	189	196	203	210	217	224
EPI	17.20	18.56		22.00		21.90		21.40
4		18.52				21.91		
8		11.37				15.29		
10		8.63				10.67		
11		7.81				9.04		
12		7.09				8.06		
13		6.62				7.50		
14		6.47				7.20		
OF	14.90	17.50	17.90	20.10	19.00	18.40	17.00	17.80
IF	10.00	12.80	14.50	18.50	14.60	15.00	13.40	14.00

	231	238	245	252	259	266	273	280
EPI		21.38		19.65		13.70		11.35
4		20.95				13.70		
8		19.97				13.70		
10		12.46				13.70		
11		10.12				13.60		
12		8.47				10.50		
13		7.87				8.00		
14		7.62				7.80		
OF	16.90	20.00	15.30	18.50	11.00	11.00	11.30	6.50
IF	12.10	14.70	11.70	14.50	8.20	9.00	9.00	4.40

	287	294	301	344
EPI		8.43		
4		8.43		
8		8.43		
10		8.43		
11		8.43		
12		8.43		
13		8.42		
14		8.42		
OF	4.00	3.60	1.10	
IF	3.80	8.41	.60	

LAKE 223 Cond (uS/cm) 1980

DEPTH(m) DAY #

	023	057	078	126	133	140	156	161
EPI	37	32	34	30		32	33	
4	34	32	32	31			33	
8	32	32	32	31			30	
10	34	33	33	31			30	
11	34	33	33	31			30	
12	35	34	35	32			33	
13	56	78	86	33			49	
14	170	198	206	192			165	
OF				30	31	32	33	32
IF				21	21	23	37	46

	168	182	189	196	203	210	217	224
EPI	33	33		32		33		31
4		33				33		
8		30				30		
10		29				29		
11		30				30		
12		39				39		
13		53				56		
14		57				71		
OF	39	48	33	55	32	32	30	32
IF	48	33	54	33	46	52	40	54

	231	238	245	252	259	266	273	280
EPI		33		32		33		35
4		33				33		
8		32				33		
10		29				33		
11		34				34		
12		60				73		
13		80				101		
14		89				144		
OF	33	34	32	34	32	35	33	34
IF	47	57	53	57	52	54	51	53

	287	294	301	344
EPI		32		34
4		32		33
8		32		36
10		31		33
11		32		34
12		32		34
13		32		35
14		32		91
OF	36	35	35	
IF	53	45	49	

LAKE 223 pH 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	5.62	5.57	5.56	5.86		5.81	5.41	
4	5.57	5.47	5.43	5.69			5.39	
8	5.52	5.47	5.35	5.63			5.99	
10	5.35	5.32	5.29	5.67			5.79	
11	5.43	5.45	5.61	5.57			5.63	
12	5.60	5.80	5.93	5.83			5.85	
13	6.43	6.79	6.82	5.82			6.31	
14	6.92	6.98	6.92	6.79			6.85	
OF				5.95	5.75	5.68	5.69	5.59
IF				6.32	6.29	6.29	6.63	5.59

	168	182	189	196	203	210	217	224
EPI	5.81	5.49		6.00		5.41		5.80
4		5.39				5.35		
8		6.21				6.27		
10		5.85				6.18		
11		6.21				5.99		
12		6.50				6.21		
13		6.68				6.51		
14		5.98				6.60		
OF	6.79	6.58	5.90	6.55	5.87	5.99	5.78	5.81
IF	6.59	5.98	7.23	5.42	6.50	6.60	6.41	6.63

	231	238	245	252	259	266	273	280
EPI		5.90		6.00		5.50		5.60
4		5.81				5.60		
8		5.76				5.70		
10		6.00				5.80		
11		5.99				5.80		
12		6.43				6.50		
13		6.56				6.60		
14		6.51				6.70		
OF	5.88	6.01	6.01	6.21	6.01	6.90	6.13	6.50
IF	6.44	6.51	6.71	6.51	6.52	6.70	6.58	6.70

	287	294	301	344
EPI		5.11		5.49
4		5.23		5.34
8		5.25		5.33
10		5.27		5.33
11		5.27		5.32
12		5.30		5.53
13		5.37		5.67
14		5.29		6.44
OF	6.30	6.14	6.15	
IF	6.20	6.20	6.31	

LAKE 223 Alkal (uEq/L) 1990

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	4	3	6	13		1		
4	3	4	6	11			-7	
8	7	7	5	13			31	
10	5	12	10	17			38	
11	16	21	45	20			16	
12	42	75	170	37			74	
13	372	804		49			80	
14	2113	2341	2556	2553			12	
OF				96	7	7	11	22
IF				87	79	102	230	314

	168	182	189	196	203	210	217	224
EPI		11		4		3		-3
4		7				3		
8		22				20		
10		45				39		
11		31				80		
12		45				58		
13		34				278		
14		84				596		
OF	11	14	32	23	36	20		19
IF	349	346	430	457	344	430	273	463

	231	238	245	252	259	266	273	280
EPI								
4								-4
8		2						
10		88						
11		108						
12		66						
13		28						
14		41						
OF	24	22	32	54	45	60	56	64
IF	353	479	474	504	473	430	455	474

	287	294	301	344
EPI		-2		-9
4		-1		
8		-1		-4
10		-8		-13
11		3		-21
12		4		-28
13		-2		-30
14		-10		16
OF	52	58	33	
IF	454	307	339	

LAKE 223 O2 (mg/L) 1980

DEPTH(m) DAY #

	023	057	078	126	133	140	156	161
EPI	11.99	10.90	10.74	9.09			9.82	
4	10.40	9.19	8.52	8.80			9.21	
8	10.29	7.82	6.73	7.56			12.80	
10	3.09	1.72	1.36	6.25			7.38	
11	2.44	1.45	.32	6.13			4.27	
12	1.71	.31	.06	4.20			< .01	
13	< .01	< .01	< .01	3.00			< .01	
14	< .01	< .01	< .01	< .01			< .01	
OF								
IF								

	168	182	189	196	203	210	217	224
EPI		9.73				8.35		
4		10.43				8.30		
8		13.08				12.00		
10		11.58				9.92		
11		1.25				3.40		
12		< .01				.20		
13		< .01				.05		
14		< .01				< .01		
OF								
IF								

	231	238	245	252	259	266	273	280
EPI		9.30				9.15		
4		8.70				9.48		
8		8.85				9.20		
10		6.25				9.00		
11		< .01				8.28		
12		< .01						
13		< .01						
14		< .01						
OF								
IF								

	287	294	301	344
EPI		10.60		11.49
4		10.49		11.73
8		10.55		11.93
10		10.53		9.36
11		10.61		5.93
12		10.50		3.07
13		10.60		.21
14		10.62		
OF				
IF				

LAKE 223 NH3-N (ug/L) 1980

DEPTH(m) DAY #

	023	057	078	126	133	140	156	161
EPI	60	62	70	34		14	15	
4	49	76	84	85			28	
8	72	95	86	95			16	
10	128	101	61	99			28	
11	168	113	178	105			17	
12	300	310	456	206			165	
13	860	1450	1660	298			560	
14	3920	4940	5370	5990			4220	
OF				48	21	26	35	41
IF				17	25	22	32	24

	168	182	189	196	203	210	217	224
EPI	19	24		14		10		30
4		24				5		
8		19				12		
10		19				11		
11		61				11		
12		318				197		
13		693				660		
14		1190				1060		
OF	30	49	36	49	25	22	40	57
IF	27	71	54	60	45	34	57	52

	231	238	245	252	259	266	273	280
EPI		9		22		13		20
4		9				9		
8		13				17		
10		24				16		
11		28				45		
12		533				849		
13		1310				2055		
14		1622				3447		
OF	33	49	17	21	31	11	12	23
IF	33	46	19	25	47	31	24	29

	287	294	301	344
EPI		21		35
4		24		24
8		17		27
10		16		104
11		24		185
12		22		390
13		27		525
14		23		1700
OF	23	20	17	
IF	34	59	46	

LAKE 223 NO3-N (ug/L) 1980

DEPTH(m)	DAY #							
	023	057	078	125	133	140	156	161
EPI	13	15	18	58		1	4	
4	14	21	29	59			5	
8	17	52	78	60			4	
10	154	242	274	62			4	
11	190	222	146	62			4	
12	145	71	5	53			4	
13	85	13	13	48			5	
14	38	14	18	21			11	
OF				58	30	5	11	8
IF				19	21	23	22	24

	168	182	189	196	203	210	217	224
EPI	2	2		3		1		1
4		2				1		
8		2				1		
10		3				< 1		
11		4				1		
12		6				1		
13		9						
14		21						
OF	8	15	9	33	5	6	17	3
IF	22	50	18	44	120	45	271	18

	231	238	245	252	259	266	273	280
EPI		5		1		< 1		< 1
4		5				< 1		
8		4				1		
10		4				1		
11		4				1		
12		5				9		
13		6				24		
14		8				30		
OF	4	5	2	6	6	10	4	9
IF	72	16	26	21	26	40	46	47

	287	294	301	344
EPI		1		7
4		< 1		4
8		< 1		2
10		< 1		4
11		< 1		6
12		< 1		9
13		< 1		2
14		6		13
OF	14	16	15	
IF	56	34	111	

LAKE 223 TDN (ug/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	270	275	300	270		192	215	
4	270	285	305	280			225	
8	260	335	320	290			200	
10	480	510	475	325			260	
11	520	500	475	340			255	
12	530	530	710	460			415	
13	1280	1980	2200	600			890	
14	4800	5970	6700	7370			5590	
OF				294	230	225	250	252
IF				250	220	240	230	235

	168	182	189	196	203	210	217	224
EPI	211	187		212		210		220
4		194				220		
8		206				230		
10		221				270		
11		292				350		
12		634				490		
13		936				1320		
14		1683				1870		
OF	313	265	225	290	240	270	340	235
IF	214	318	257	355	590	370	845	270

	231	238	245	252	259	266	273	280
EPI		190		195		190		214
4		205				180		
8		220				185		
10		245				190		
11		285				225		
12		800				1135		
13		1560				2465		
14		2040				3920		
OF	265	210	225	305	190	185	190	166
IF	390	260	255	225	215	255	245	231

	287	294	301	344
EPI		210		245
4		195		233
8		245		224
10		215		331
11		225		440
12		195		645
13		215		901
14		240		1613
OF	310	190	215	
IF	290	415	410	

LAKE 223 Susp N (ug/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	36	40	51	49		20	55	
4	31	2	64	53			136	
8	61	44	74	97			127	
10	97	50	47	95			208	
11	63	81	107	81			247	
12	97	103	176	89			247	
13	593	842	730	152			303	
14	1743	1336	1110	919			819	
OF				62	45	1	114	45
IF				41	11	< 1	37	1

	168	182	189	196	203	210	217	224
EPI	18	41		21		< 1		14
4		39				14		
8		74				40		
10		307				235		
11		539				487		
12		421				350		
13		854				645		
14		753				599		
OF	24	44	32	20	29	63	112	72
IF	26	38	39	73	84	84	37	< 1

	231	238	245	252	259	266	273	280
EPI		17		14		17		42
4		63				64		
8		12				33		
10		199				25		
11		455				120		
12		948				439		
13		763				720		
14		933				1279		
OF	98	9	< 1	39	17	< 1	8	< 1
IF	75	75	< 1	50	19	39	36	3

	287	294	301	344
EPI		63		56
4		24		23
8		75		6
10		69		11
11		72		11
12		33		17
13		54		922
14		30		237
OF		< 1		
IF		< 1		

LAKE 223 TDP (ug/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	3	3	3	2		2	3	
4	3	3	2	2			3	
8	3	2	2	2			3	
10	4	4	2	2			7	
11	3	3	2	3			6	
12	4	4	4	4			8	
13	9	17	12	5			8	
14	83	440	640	128			52	
OF				3	2	3	3	3
IF				4	3	4	5	6

	168	182	189	196	203	210	217	224
EPI	2	2		2		3		3
4		2				3		
8		2				3		
10		4				5		
11		6				10		
12		10				8		
13		10				15		
14		14				20		
OF	4	4	3	5	3	4	6	4
IF	5	6	6	9	8	9	14	7

	231	238	245	252	259	266	273	280
EPI		2		2		1		2
4		1				2		
8		2				2		
10		5				2		
11		5				2		
12		12				9		
13		18				13		
14		17				20		
OF	5	3	3	4	2	3	2	2
IF	9	5	5	4	4	5	4	4

	287	294	301	344
EPI		3		4
4		3		3
8		3		3
10		3		4
11		3		4
12		2		4
13		3		6
14		3		20
OF	3	3	2	
IF	4	5	4	

LAKE 223 Susp P (ug/L) 1980

DEPTH(m)	DAY #							
	023	057	078	125	133	140	156	161
EPI	3	4	3	5		3	2	
4	4	3	4	5			9	
8	3	3	3	6			6	
10	5	6	4	6			10	
11	8	6	10	5			18	
12	9	12	26	6			26	
13	73	84	72	11			40	
14	189	190	188	194			122	
OF				4	4	3	3	4
IF				3	1	1	2	3

	168	182	189	196	203	210	217	224
EPI	3	3		2		2		2
4		3				2		
8		5				5		
10		19				20		
11		49				25		
12		41				58		
13		58				99		
14		102				120		
OF	3	3	4	6	2	3	11	6
IF	3	3	4	13	5	6	12	4

	231	238	245	252	259	266	273	280
EPI		2		2		4		5
4		3				5		
8		3				4		
10		16				4		
11		52				5		
12		106				74		
13		115				147		
14		132				206		
OF	6	3	3	3	2	3	2	1
IF	4	6	4	5	4	6	5	3

	287	294	301	344
EPI		5		17
4		5		11
8		5		4
10		6		5
11		5		7
12		6		11
13		8		160
14		12		55
OF	2	1	2	
IF	5	2	2	

LAKE 223 DIC (uM/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	58	66	81	56		19	19	
4	68	93	117	108			26	
8	80	130	166	140			42	
10	272	298	302	183			176	
11	316	315	376	190			270	
12	352	400	468	248			400	
13	730	1000	1110	320			545	
14	2150	2470	2725	2820			1970	
OF				89	35	45	65	55
IF				200	157	182	405	467

	168	182	189	196	203	210	217	224
EPI	11	19		107		22		41
4		18				22		
8		22				13		
10		87				202		
11		324				520		
12		449				752		
13		593				1009		
14		808				919		
OF	68	69	67	21	89	145	126	84
IF	499	516	592	555	201	749	353	471

	231	238	245	252	259	266	273	280
EPI		9		16		39		28
4		3				38		
8		22				39		
10		237				44		
11		462				57		
12		805				956		
13		1008				1334		
14		1221				1682		
OF	170	123	188	158	162	145	167	164
IF	589	524	745	732	776	637	658	707

	287	294	301	344
EPI		21		34
4		22		34
8		21		37
10		23		101
11		22		195
12		20		294
13		20		405
14		20		1099
OF	148	142	134	
IF	689	524	615	

LAKE 223 DOC (uM/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	380	335	580	330		275	273	
4	340	300	580	325			250	
8	390	290	600	340			282	
10	350	375	560	330			378	
11	350	330	530	315			339	
12	380	305	640	340			334	
13	590	920	1210	350			414	
14	2300	3450	3200	2070			1685	
OF				310	275	295	251	279
IF				400	330	310	326	382

	168	182	189	196	203	210	217	224
EPI	237	256		244		280		195
4		261				275		
8		276				285		
10		341				340		
11		306				360		
12		386				370		
13		511				600		
14		701				700		
OF	237	266	245	252	260	275	490	170
IF	298	411	354	372	650	390	850	205

	231	238	245	252	259	266	273	280
EPI		300		550		320		390
4		290				340		
8		285				320		
10		350				320		
11		350				310		
12		605				560		
13		865				640		
14		900				620		
OF	285	270	490	320	380	250	240	270
IF	505	425	520	460	480	450	430	510

	287	294	301	344
EPI		680		400
4		570		370
8		550		390
10		530		340
11		600		340
12		570		330
13		570		1020
14		640		310
OF	440	2640	490	
IF	660	2920	600	

LAKE 223 Susp C (ug/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	610	280	310	600		820	380	
4	500	330	570	940			740	
8	390	550	520	1010			1100	
10	760	810	460	910			1590	
11	810	580	900	920			1760	
12	510	1040	1410	1070			1500	
13	3460	4660	4200	1500			1890	
14	6910	8260	7080	5500			5230	
OF				830	600	580	300	360
IF				470	400	390	270	330

	168	182	189	196	203	210	217	224
EPI	430	430		510		330		490
4		390				360		
8		900				680		
10		2780				2260		
11		3760				3650		
12		2650				3160		
13		2740				4550		
14		3760				3400		
OF	410	490	280	780	390	500	810	500
IF	560	300	460	1190	530	340	570	320

	231	238	245	252	259	266	273	280
EPI		490		460		550		610
4		560				530		
8		550				450		
10		1400				520		
11		3100				580		
12		5240				2890		
13		4480				3890		
14		5070				6740		
OF	630	340	240	260	230	280	210	250
IF	300	520	270	370	260	350	400	410

	287	294	301	344
EPI		690		840
4		550		560
8		580		520
10		560		450
11		720		500
12		550		650
13		750		4980
14		690		1990
OF	270	160	320	
IF	490	240	190	

LAKE 223 Cl (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	< .2	.1	.6	.6		.5	.5	
4	< .2	.1	.6	.6			.1	
8	< .2	.1	.8	.5			.3	
10	< .2	.6	.8	.6			.6	
11	< .2	.1	.8	.6			.3	
12	< .2	.2	1.0	.6			< .1	
13	.2	.7	.7	.6			.1	
14	.8	.8	.8	.9			.5	
OF				.6	.6	.4	< .1	.4
IF				.4	.2	.7	.2	.7

	168	182	189	196	203	210	217	224
EPI	.5	.1		.1		.3		.3
4		.3				.3		
8		.3				.3		
10		.4				.3		
11		.4				.5		
12		.5				.5		
13		.6				.6		
14		.7				.6		
OF	.5	.6	.4	.2	.3	.5	.3	.4
IF	.6	.7	.6	.6	.5	.6	.4	.6

	231	238	245	252	259	266	273	280
EPI		.4		.3		.2		.3
4		.4				.1		
8		.5				.3		
10		.7				.3		
11		.8				.4		
12		1.0				.5		
13		.8				.5		
14		.8				.6		
OF	.5	.6	.4	.3	.3	.5	.4	.4
IF	.6	.7	.6	< .1	.5	.6	.5	.6

	287	294	301	344
EPI		.2		1.0
4		.3		1.1
8		.5		.8
10		.4		.7
11		.5		.6
12		.7		.7
13		1.0		1.1
14		.9		.8
OF	.6	.8	.6	
IF	.6	.9	.9	

LAKE 223 SO4 (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	11.8	2.0	10.6	9.0		10.5	10.5	
4	11.7	1.9	9.8	9.0			10.5	
8	11.7	1.8	9.8	9.0			9.0	
10	11.4	1.3	9.0	8.8			8.7	
11	11.0	1.2	8.5	8.8			8.5	
12	10.8	1.4	7.2	8.6			5.0	
13	7.9	2.6	1.2	8.4			6.5	
14	1.1	1.3	1.0	1.3			1.4	
OF				9.0	9.4	10.6	10.4	10.6
IF				3.9	4.1	3.7	4.1	4.7

	168	182	189	196	203	210	217	224
EPI	10.7	10.5		11.0		10.8		10.7
4		10.6				10.8		
8		9.1				9.1		
10		8.2				7.4		
11		7.4				6.2		
12		6.7				5.7		
13		5.2				3.6		
14		3.1				1.7		
OF	10.7	10.4	10.4	9.1	10.5	9.8	9.0	10.1
IF	4.7	4.2	3.6	3.1	4.6	3.0	4.1	2.9

	231	238	245	252	259	266	273	280
EPI		10.6		11.0		10.9		11.0
4		10.7				10.8		
8		10.5				10.6		
10		6.5				10.5		
11		5.2				10.3		
12		2.6				1.2		
13		.8				1.1		
14		.9				1.3		
OF	9.7	10.1	10.0	9.6	10.0	9.2	10.2	9.8
IF	4.4	2.7	2.9	2.5	2.9	3.3	3.2	2.8

	287	294	301	344
EPI		11.1		11.7
4		11.2		13.2
8		11.2		11.8
10		11.2		11.8
11		11.4		11.9
12		11.3		11.0
13		11.5		2.9
14		11.0		10.2
OF	10.2	11.2	11.1	
IF	2.9	5.3	4.9	

LAKE 223 H2S-S (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI								
4								
8	< .01							
10	< .01							
11	< .01	< .01	< .01				< .01	
12	< .01	< .01	< .01	< .01			< .01	
13	< .01		.03	< .01			.07	
14	.02	.01	.03	.03			.07	
OF								
IF								

	168	182	189	196	203	210	217	224
EPI								
4								
8		< .01						
10		< .01						
11		< .01						
12		< .01						
13		.28				.01		
14		.07				.10		
OF								
IF								

	231	238	245	252	259	266	273	280
EPI								
4								
8								
10								
11								
12		.18				.10		
13		.13				.10		
14		.17				.11		
OF								
IF								

	287	294	301	344
EPI				
4				
8				
10				< .01
11				< .01
12				< .01
13				< .01
14				.06
OF				
IF				

LAKE 223 Na (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	1.27	1.46	1.13	1.11		1.49	1.11	
4	1.18	1.37	.98	1.64			1.14	
8	1.22	1.36	.98	1.52			1.07	
10	1.24	1.12	1.01	1.03			1.11	
11	1.27	1.12	1.06	1.52			1.12	
12	1.29	1.12	1.15	1.06			1.12	
13	1.25	1.48	1.22	1.05			1.16	
14	1.41	1.57	1.22	1.80			1.16	
OF				1.60	1.00	1.71	1.14	1.06
IF				1.53	1.72	.88	1.49	1.86

	168	182	189	196	203	210	217	224
EPI	1.46	1.00		.97		1.06		1.05
4		.97				1.00		
8		1.18				.97		
10		.97				.93		
11		.96				.99		
12		1.00				1.06		
13		1.03				1.01		
14		1.03				1.01		
OF	1.41	1.03	.90	.93	.93	.99	.97	1.05
IF	2.04	1.82	1.78	1.87	1.63	1.93	1.53	1.98

	231	238	245	252	259	266	273	280
EPI		1.12		1.06		.98		.97
4		1.14				.97		
8		1.09				.97		
10		1.08				1.00		
11		1.16				.98		
12		1.21				1.01		
13		1.18				1.06		
14		1.15				1.07		
OF	1.09	1.14	1.05	1.16	1.15	1.11	1.09	1.17
IF	1.77	2.08	2.03	2.08	2.14	1.84	1.95	1.96

	287	294	301	344
EPI		.98		1.03
4		.93		1.00
8		1.00		1.00
10		.97		.94
11		.98		.94
12		1.00		.94
13		1.01		1.11
14		1.00		.97
OF	1.09	1.11	1.07	
IF	1.95	1.74	1.85	

LAKE 223 K (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	.34	.32	.16	.10		.32	.34	
4	.32	.32	.14	.12			.34	
8	.30	.34	.14	.12			.30	
10	.30	.32	.14	.12			.34	
11	.30	.32	.16	.14			.34	
12	.32	.34	.18	.14			.36	
13	.34	.42	.27	.14			.42	
14	.58	.62	.47	.51			.63	
OF				.12	.28	.32	.32	.32
IF				.14	.28	.32	.20	.30

	168	182	189	196	203	210	217	224
EPI	.34	.32		.28		.24		.22
4		.32				.26		
8		.30				.24		
10		.32				.26		
11		.40				.30		
12		.42				.36		
13		.42				.37		
14		.51				.41		
OF	.32	.30	.24	.32	.20	.28	.30	.26
IF	.26	.32	.26	.35	.35	.36	.49	.34

	231	238	245	252	259	266	273	280
EPI		.31		.27		.32		.35
4		.31				.30		
8		.31				.32		
10		.33				.32		
11		.42				.30		
12		.46				.49		
13		.48				.57		
14		.50				.61		
OF	.24	.33	.36	.40	.33	.38	.38	.42
IF	.26	.42	.44	.46	.42	.68	.55	.55

	287	294	301	344
EPI		.38		.28
4		.32		.28
8		.36		.28
10		.34		.26
11		.34		.28
12		.32		.28
13		.32		.34
14		.34		.24
OF	.47	.32	.34	
IF	.61	.42	.40	

LAKE 223 Ca (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	2.58	2.80	3.12	2.79		2.90	2.59	
4	2.53	2.58	2.90	2.79			2.63	
8	2.69	2.58	2.90	2.73			2.54	
10	2.64	2.69	2.96	2.90			2.59	
11	2.58	2.64	3.07	2.79			2.54	
12	2.58	2.69	3.07	2.96			2.72	
13	3.07	3.61	4.24	2.96			2.90	
14	5.12	5.55	6.47	7.03			5.09	
OF				2.94	2.84	2.96	2.81	2.58
IF				2.34	2.23	2.51	4.10	4.95

	168	182	189	196	203	210	217	224
EPI	2.68	2.46		2.40		2.31		2.70
4		2.54				2.27		
8		2.54				2.27		
10		2.59				2.22		
11		2.63				2.27		
12		2.76				2.53		
13		2.90				2.80		
14		3.30				2.80		
OF	2.81	2.90	2.84	2.49	2.67	2.62	2.76	3.08
IF	5.39	5.26	5.64	5.91	4.44	5.47	4.27	6.21

	231	238	245	252	259	266	273	280
EPI		2.40		2.56		2.42		2.39
4		2.44				2.42		
8		2.53				2.47		
10		2.61				2.38		
11		2.70				2.47		
12		3.21				3.59		
13		3.25				3.72		
14		3.47				3.90		
OF	3.04	2.91	2.83	2.83	2.92	2.83	3.14	2.96
IF	5.35	6.55	5.95	6.82	6.73	5.70	5.83	5.70

	287	294	301	344
EPI		2.68		2.63
4		2.78		2.63
8		2.73		2.68
10		2.68		2.78
11		2.78		2.63
12		2.93		2.52
13		2.83		3.09
14		2.63		2.42
OF	3.71	3.65	2.99	
IF	6.59	5.10	5.15	

LAKE 223 Mg (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	.57	.61	.56	.33		.45	.60	
4	.55	.58	.51	.33			.61	
8	.59	.58	.51	.32			.59	
10	.57	.60	.53	.35			.60	
11	.57	.61	.53	.33			.59	
12	.56	.63	.60	.35			.60	
13	.61	.69	.59	.35			.62	
14	.78	.86	.86	.72			.80	
OF				.35	.47	.49	.63	.58
IF				.25	.38	.43	.92	.90

	168	182	189	196	203	210	217	224
EPI	.62	.57		.59		.61		.61
4		.59				.56		
8		.58				.55		
10		.59				.55		
11		.60				.56		
12		.61				.62		
13		.62				.64		
14		.68				.63		
OF	.61	.63	.62	.58	.63	.62	.65	.66
IF	.95	.96	1.00	1.05	.93	1.01	.94	1.07

	231	238	245	252	259	266	273	280
EPI		.56		.59		.57		.59
4		.56				.57		
8		.60				.58		
10		.61				.56		
11		.64				.56		
12		.67				.64		
13		.64				.68		
14		.67				.69		
OF	.64	.64	.62	.62	.63	.62	.57	.64
IF	1.02	1.13	1.06	1.18	1.16	1.06	1.06	1.10

	287	294	301	344
EPI		.57		.60
4		.61		.61
8		.61		.63
10		.57		.63
11		.61		.60
12		.62		.56
13		.61		.66
14		.57		.58
OF	.74	.73	.65	
IF	1.14	.93	.97	

LAKE 223 Mn (mg/L) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	.11	.09	.12	.10		.10	.11	
4	.11	.08	.12	.10			.11	
8	.11	.09	.15	.12			.11	
10	.15	.14	.20	.12			.14	
11	.17	.12	.23	.12			.14	
12	.17	.18	.27	.12			.23	
13	.26	.37	.40	.13			.24	
14	.67	.61	.76	.73			.60	
OF				.08	.10	.09	.11	.10
IF				< .02	< .01	< .01	.03	.03

	168	182	189	196	203	210	217	224
EPI	.11	.11		.11		.13		.16
4		.11				.13		
8		.10				.09		
10		.12				.13		
11		.18				.21		
12		.25				.36		
13		.28				.36		
14		.32				.39		
OF	.10	.10	.10	.11	.10	.10	.10	.16
IF	.03	.04	.03	.06	.04	.04	.04	.06

	231	238	245	252	259	266	273	280
EPI		.14		.16		.15		.13
4		.14				.15		
8		.14				.15		
10		.13				.13		
11		.44				.15		
12		.44				.50		
13		.47				.55		
14		.49				.62		
OF	.14	.13	.13	.10	.09	.07	.05	.05
IF	.06	.03	.03	.06	.04	.03	.03	.02

	287	294	301	344
EPI		.17		.15
4		.15		.17
8		.15		.15
10		.13		.17
11		.13		.17
12		.15		.17
13		.13		.35
14		.12		.23
OF	.05	.09	.10	
IF	.03	.05	.07	

LAKE 223 Fe (mg/L) 1980

DEPTH(m) DAY #

	023	057	079	126	133	140	156	161
EPI	.07	.03	< .04	.03		< .03	.04	
4	< .03	< .03	< .04	.03			.04	
8	< .03	.10	< .04	.07			.07	
10	.13	.10	.11	.13			.26	
11	.16	.10	.25	.13			.39	
12	.36	.49	1.96	.37			1.45	
13	9.82	23.90	12.00	.64			5.37	
14	60.00	83.90	59.20	45.10			48.10	
OF				.07	.03	.03	.07	< .04
IF				.27	.03	.07	.74	.79

	168	182	189	196	203	210	217	224
EPI	< .04	< .03		.03		< .03		.03
4		< .03				.03		
8		< .03				< .03		
10		.07				.03		
11		.10				.19		
12		2.65				1.61		
13		7.48				8.86		
14		13.90				12.10		
OF	.04	.03	.07	.10	.10	.06	.13	.13
IF	.67	.82	.65	.82	.75	.87	.58	.64

	231	238	245	252	259	266	273	280
EPI		.04		.08		.04		.11
4		.04				.04		
8		.04				.04		
10		.11				.08		
11		.33				.12		
12		9.04				13.20		
13		15.80				20.00		
14		17.20				33.50		
OF	.11	.11	.07	.08	.09	.05	.04	.04
IF	.66	.80	.77	.76	.64	.68	.64	.46

	287	294	301	344
EPI		.14		.04
4		.14		.04
8		.18		.04
10		.14		.07
11		.18		.14
12		.14		.32
13		.14		21.30
14		.14		.36
OF	.18	.11	.07	
IF	.64	.50	.43	

LAKE 223 Ferrous-Fe (mg/L) 1980

DEPTH(m) DAY #

	023	057	078	126	133	140	156	161
EPI	< .01	< .01	< .01	.05			< .01	
4	< .01	< .01	< .01	.03			< .01	
8	< .01	< .01	< .01	.04			.03	
10	.03	.01	.02	.06			.06	
11	.05	.02	.10	.06			.08	
12	.06	.17	2.03	.10			1.60	
13	6.98	16.52	18.72	.15			5.45	
14	49.70	58.75	57.30	53.30			40.80	
OF				.05			.04	
IF				.07			.34	

	168	182	189	196	203	210	217	224
EPI		< .01				< .01		
4		< .01				.01		
8		< .01				.01		
10		< .01				.01		
11		< .01				.06		
12		2.47				2.67		
13		6.12				7.69		
14		11.00				11.34		
OF						.04		
IF						.33		

	231	238	245	252	259	266	273	280
EPI		< .01				.02		
4		< .01				.02		
8		< .01				.01		
10		.01				.02		
11		.80				.07		
12		6.63				8.27		
13		10.60				7.71		
14		12.49				7.72		
OF		.01				.03		
IF		.08				.30		

	287	294	301	344
EPI		< .01		< .01
4		< .01		< .01
8		< .01		< .01
10		.01		< .01
11		.01		< .01
12		.01		.01
13		.01		.03
14		.01		.38
OF		.02		
IF		.08		

LAKE 223 SRSi (ug/L) 1980

DEPTH(m) DAY #

	023	057	079	126	133	140	156	161
EPI	1.340	1.400	1.410	1.410		1.350	1.210	
4	1.310	1.350	1.380	1.360			1.210	
8	1.320	1.450	1.520	1.370			1.450	
10	1.960	2.000	1.990	1.500			1.740	
11	2.060	2.010	2.160	1.530			1.950	
12	2.120	2.210	2.410	1.750			2.090	
13	2.370	3.800	4.140	1.990			2.330	
14	7.490	7.810	8.210	7.620			5.340	
OF				1.040	1.410	1.300	1.180	1.170
IF				.852	.584	.579	2.720	4.540

	168	182	189	196	203	210	217	224
EPI	1.240	1.050		.918		.875		.874
4		1.040				.901		
8		1.390				1.150		
10		1.790				1.490		
11		2.060				2.160		
12		2.160				2.310		
13		2.330				2.610		
14		2.620				2.860		
OF	1.170	.930	.787	.743	1.050	.885	1.240	.962
IF	4.950	5.250	5.170	5.020	5.230	5.230	4.420	5.400

	231	238	245	252	259	266	273	280
EPI		.868		1.030		.992		1.010
4		.878				1.000		
8		.950				1.000		
10		1.870				1.040		
11		2.390				1.080		
12		2.720				2.800		
13		3.120				3.500		
14		3.330				4.110		
OF	1.200	.908	.893	1.010	.894	1.200	.884	1.070
IF	5.020	5.510	5.570	5.800	5.560	5.390	5.580	5.750

	287	294	301	344
EPI		.944		.923
4		.935		.928
8		.942		.933
10		.944		1.220
11		.928		1.440
12		.934		1.920
13		.951		2.290
14		.985		3.270
OF	1.190	1.540	1.390	
IF	5.690	4.790	5.200	

LAKE 223 Chl-a (ug/L) 1980

DEPTH(m) DAY #

	023	057	078	126	133	140	156	161
EPI	7.5	2.5	.7	1.7		2.3	.9	
4	3.2	1.3	.9	2.5			.6	
8	3.0	1.1	.9	5.7			7.2	
10	4.1	1.2	.6	6.9			20.6	
11	5.0	1.6	1.5	3.7			32.6	
12	4.6	3.0	3.1	4.7			16.8	
13	13.5	8.9	4.8	5.3			19.6	
14	12.0	13.3	15.6	21.9			25.4	
OF								
IF								

	168	182	189	196	203	210	217	224
EPI		.2		1.3		1.1		
4		1.6				.9		
8		2.8				1.6		
10		25.0				13.7		
11		51.5				26.6		
12		14.0				31.0		
13		18.9				20.0		
14		20.6				29.2		
OF						1.0		
IF						1.2		

	231	238	245	252	259	266	273	280
EPI		1.7		1.4		4.7		5.6
4		2.5				5.1		
8		3.4				4.8		
10		18.6				4.6		
11		29.8				4.9		
12		43.0				24.0		
13		40.5				26.6		
14		45.0				32.4		
OF		1.3						
IF		3.8						

	287	294	301	344
EPI		7.3		6.6
4		7.7		7.5
8		7.4		7.5
10		7.7		4.7
11		7.9		4.4
12		7.0		3.7
13		6.8		14.6
14		8.2		8.2
OF				
IF				

LAKE 223 Colour (abs425nm) 1980

DEPTH(m)	DAY #							
	023	057	078	126	133	140	156	161
EPI	.023	.023	.016	.019			.018	
4	.024	.014	.014	.016			.018	
8	.018	.015	.016	.019			.022	
10	.035	.032	.028	.033			.071	
11	.039	.039	.045	.032			.070	
12	.056	.087	.174	.062			.191	
13	.426	1.290	1.590	1.080			.280	
14	4.140	5.125	5.450	5.810			4.084	
OF				.037			.025	
IF				.114			.156	

	168	182	189	196	203	210	217	224
EPI		.018				.030		
4		.010				.029		
8		.020				.046		
10		.030				.032		
11		.035				.099		
12		.395				.292		
13		.651				.939		
14		1.200				1.262		
OF		.032				.054		
IF		.186				.256		

	231	238	245	252	259	266	273	280
EPI		.017				.021		
4		.017				.017		
8		.018				.019		
10		.050				.029		
11		.067				.028		
12		.892				.806		
13		1.568				1.162		
14		1.695				1.719		
OF		.037				.050		
IF		.196				.228		

	287	294	301	344
EPI		.027		.021
4		.025		.019
8		.025		.016
10		.024		.020
11		.025		.026
12		.022		.044
13		.027		.052
14		.021		1.790
OF		.036		
IF		.131		

Appendix 8

1981 Water chemistry data

LAKE 223 Temp (C) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI				9.52		12.39		14.90
4				8.89				14.80
8				5.94				8.60
10				5.69				7.50
11				5.61				7.10
12				5.59				6.60
13				5.59				6.50
14				5.56				6.40
OF				9.80				
IF				8.20				

	159	166	173	180	187	194	201	208
EPI				18.37				21.17
4				18.21				21.13
8				12.12				14.19
10				9.50				10.45
11				8.78				9.61
12				8.43				8.54
13				7.70				7.93
14				7.64				7.73
OF				18.00				21.00
IF				14.60				15.50

	215	222	229	236	243	250	257	264
EPI				19.64				16.27
4				19.63				16.27
8				17.62				16.27
10				11.59				13.55
11				10.21				10.87
12				8.47				9.41
13				7.92				8.69
14				7.83				8.55
OF				16.00				8.00
IF								

	271	278	285	292	299	349
EPI				8.15		
4				8.15		
8				8.15		
10				8.15		
11				8.15		
12				8.15		
13				8.15		
14				8.15		
OF				6.30		
IF				5.10		

LAKE 223 Cond (uS/cm) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	35	37	36	31		35		36
4	36	35	35	30				35
8	36	36	34	31				31
10	36	35		30				33
11	36	36	34	30				32
12	38	40	47	29				33
13	66	71	75	30				33
14	123	137	158	30				33
OF				29	32	35	34	34
IF				45	46	45	53	49

	159	166	173	180	187	194	201	208
EPI		34		35		38		39
4				35				39
8				34				35
10				30				33
11				31				34
12				31				40
13				32				47
14				36				49
OF	35	32	37	34	36	42	27	37
IF	33	31	49	37	31	29	24	29

	215	222	229	236	243	250	257	264
EPI		40		45		40		41
4				40				39
8				35				39
10				35				35
11				38				46
12				52				55
13				68				76
14				72				83
OF	43	37	24	40	38	38	41	40
IF	33	28	45			40		

	271	278	285	292	299	349
EPI		40		39		40
4				39		39
8				39		39
10				46		40
11				39		39
12				39		38
13				38		41
14				38		62
OF	38	38	39	38	38	
IF	46	42	45	38	38	

LAKE 223 pH 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI	5.45	5.23	5.43	5.90		5.01		5.15
4	5.34	5.22	5.34	6.00				5.12
8	5.32	5.29	5.41	5.88				6.01
10	5.45	5.45		5.70				5.78
11	5.52	5.52	5.62	5.60				5.80
12	5.72	5.87	6.29	5.60				5.51
13	6.42	6.23	6.53	5.58				5.49
14	6.52	6.42	6.52	5.55				5.50
OF				5.88	5.52	5.03	5.11	5.33
IF				6.50	6.51	6.85	6.61	6.82

	159	166	173	180	187	194	201	208
EPI		5.25		5.01		5.17		5.11
4				5.01				5.15
8				5.95				5.91
10				6.01				6.20
11				5.72				5.81
12				5.69				6.27
13				5.73				6.38
14				5.96				6.41
OF	5.25	5.26	5.20	5.14	5.17	5.21	5.26	5.25
IF	6.25	5.89	6.52	5.92	5.81	5.93	6.09	6.21

	215	222	229	236	243	250	257	264
EPI		5.11		5.08		5.19		4.98
4				5.12				5.15
8				5.83				5.18
10				5.83				5.65
11				5.91				6.15
12				6.29				6.20
13				6.50				6.30
14				6.04				6.45
OF	5.03	5.31	5.67	5.69	5.43	5.47	5.20	5.18
IF	6.11	6.19	6.33			5.86		

	271	278	285	292	299	349
EPI		5.09		5.20		5.32
4				5.20		5.19
8				5.22		5.23
10				5.14		5.35
11				5.20		5.55
12				5.33		5.62
13				5.43		5.87
14				5.35		6.35
OF	5.83	5.58	5.50	5.36	5.50	
IF	6.30	6.01	6.13	6.23	6.22	

LAKE 223 Alkal (uEq/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI		9	1	9		-10		5
4		2		9				2
8		5	4	9				8
10		29	17	17				23
11		36	30	14				23
12		32	128	12				37
13		73		11				32
14		19	726	16				40
OF				8	10	-8	-11	1
IF				419	397	377	414	435

	159	166	173	180	187	194	201	208
EPI				-41		-9		2
4				-44				-6
8				-27				16
10				-24				54
11				-4				85
12				68				178
13				69				295
14				78				317
OF	-52	-7	-7	-42	-4	-6	-3	-5
IF	128	98	360	121	101	131	145	157

	215	222	229	236	243	250	257	264
EPI		-5		-10		16		10
4				-9				11
8				19				13
10				75				80
11				174				175
12				354				247
13				571				387
14				628				407
OF	-1	-2		-4			13	29
IF	160	157	299			88		

	271	278	285	292	299	349
EPI		-3		-1		-1
4				1		-1
8				1		-1
10				1		-1
11				10		6
12				7		20
13				9		60
14				10		321
OF	9	8	5	6	2	
IF	249	139	155	137	154	

LAKE 223 02 (mg/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	10.22	10.21	9.28	11.41				8.62
4	10.13	10.72	13.08	12.06				8.59
8	9.65	8.66	10.26	11.87				11.43
10	9.18	1.89	5.42	10.96				10.13
11	1.50	1.08	2.03	10.38				6.31
12	.96	.41		10.29				3.93
13				10.03				3.86
14				8.66				2.44
OF								
IF								

	159	166	173	180	187	194	201	208
EPI				8.24				7.49
4				8.33				7.47
8				11.12				9.47
10				10.31				9.54
11				5.85				1.46
12				1.61				1.17
13				< .01				.60
14				< .01				.37
OF								
IF								

	215	222	229	236	243	250	257	264
EPI				8.20				8.46
4				8.24				8.47
8				9.76				8.38
10				2.73				.71
11				< .01				.03
12				< .01				.03
13				< .01				< .01
14				< .01				< .01
OF								
IF								

	271	278	285	292	299	349
EPI				10.07		11.53
4				9.99		11.07
8				9.88		9.86
10				9.91		7.94
11				9.73		6.97
12				9.83		5.70
13				9.99		1.79
14				9.66		
OF						
IF						

LAKE 223 NH3-N (ug/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	66	62	42	29		20		14
4	58	63	42	18				9
8	58	80	60	18				17
10	192	256	170	21				18
11	345	312	287	13				19
12	349	436	596	20				116
13	945	1245	1122	28				125
14	2976	3226	5337	64				187
OF				25	12	16	15	18
IF				55	37		24	40

	159	166	173	180	187	194	201	208
EPI		14		11		9		2
4				8				2
8				10				6
10				7				2
11				13				22
12				189				242
13				160				372
14				418				894
OF	20	12	10	5	24	16	12	25
IF	25	14	50	20	22	18	20	19

	215	222	229	236	243	250	257	264
EPI		< 1		< 1		43		< 1
4				< 1				< 1
8				< 1				< 1
10				27				< 1
11				402				292
12				424				519
13				1089				1298
14				1317				1720
OF	1	< 1	< 1	15	1	10	7	< 1
IF	4	< 1	< 1			< 1		

	271	278	285	292	299	349
EPI		< 1		< 1		17
4				< 1		20
8				< 1		60
10				< 1		101
11				< 1		144
12				< 1		233
13				< 1		415
14				< 1		580
OF	< 1	< 1	< 1	< 1	< 1	
IF	1	< 1	13	< 1	< 1	

LAKE 223 NO3-N (ug/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI	16	3	6	6		< 1		< 1
4	9	4	7	3				< 1
8	7	7	11	< 1				< 1
10	14	47	46	1				< 1
11	26	43	51	5				< 1
12	18	9	18	96				< 1
13	15	68	25	7				< 1
14	14	112	73	8				< 1
OF				2	2	< 1	6	< 1
IF				90	62		45	31

	159	166	173	180	187	194	201	208
EPI		9		6		< 1		4
4				3				3
8				< 1				4
10				1				2
11				1				3
12				1				2
13				37				14
14				3				8
OF	3	13	3	2	2	3	2	5
IF	117	145	36	19	14	13	13	22

	215	222	229	236	243	250	257	264
EPI		< 1		1		< 1		< 1
4				1				< 1
8				< 1				< 1
10				< 1				< 1
11				6				< 1
12				10				63
13				< 1				23
14				11				< 1
OF	1	< 1	< 1	1	< 1	< 1	< 1	< 1
IF	12	6	14			136		

	271	278	285	292	299	349
EPI		< 1		< 1		< 1
4				< 1		< 1
8				< 1		< 1
10				< 1		< 1
11				< 1		< 1
12				346		2
13				8		< 1
14				11		10
OF	< 1	< 1	< 1	< 1		
IF	28	14	3	21	21	

LAKE 223 TDN (ug/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI	291	256	236	234		172		160
4	231	253	239	210				166
8	242	304	261	199				153
10	346	505		220				178
11	511	588	1014	219				224
12	500	755	1971	302				340
13	1333	2176	3145	240				325
14	3875	5300	3478	297				472
OF				118	177	186	184	177
IF				293	301		237	245

	159	166	173	180	187	194	201	208
EPI		182		212		265		196
4				194				186
8				199				231
10				220				237
11				239				268
12				505				573
13				500				824
14				874				1044
OF	197	215	206	186	299	237	219	220
IF	694	929	317	716	763	548	490	445

	215	222	229	236	243	250	257	264
EPI		178		175		166		181
4				217				179
8				190				176
10				284				204
11				799				624
12				1869				1083
13				2173				2283
14				2168				2494
OF	245	191	177	221	181	159	202	304
IF	514	410	274			589		

	271	278	285	292	299	349
EPI		287		154		190
4				154		195
8				141		250
10				197		313
11				152		442
12				690		475
13				166		759
14				177		1095
OF	173	274	110	134	197	
IF	304	463	243	280	319	

LAKE 223 Susp N (ug/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	51	18	35	43		< 1		< 1
4	17	12	26	34				54
8	39	9	39	74				77
10	8	6	52	86				209
11	14	46	16	103				358
12	37	113	177	80				430
13	350	508	477	66				220
14	750	1169	1256	134				249
OF				43	150	87	20	31
IF				14	< 1	49	6	< 1

	159	166	173	180	187	194	201	208
EPI		54		17		35		79
4				20				31
8				46				55
10				154				322
11				237				354
12				220				398
13				320				414
14				359				576
OF	5	3	31	38	40	38	13	47
IF	26	80	20	< 1	< 1	32	10	10

	215	222	229	236	243	250	257	264
EPI		34		33		51		17
4				52				29
8				55				32
10				301				119
11				318				299
12				247				165
13				296				212
14				364				345
OF	31	36	49	241	30	36	38	23
IF	21	27	22			86		

	271	278	285	292	299	349
EPI		37		92		56
4				104		30
8				46		91
10				102		69
11				96		63
12				249		133
13				73		216
14				134	>	1055
OF	20	24	52	58	50	
IF	15	13	25	29	16	

LAKE 223 TDP (ug/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	2	2	3	7		3		3
4	2	2	2	3				3
8	3	7	2	3				3
10	3	6	1	3				3
11	4	8	2	4				5
12	3	8	3	5				6
13	9	13	16	4				6
14	114	168		5				6
OF				2	2	2	2	3
IF				5	3	7	4	4

	159	166	173	180	187	194	201	208
EPI		2		3		2		3
4				3				2
8				4				4
10				6				6
11				9				8
12				11				11
13				12				15
14				15				19
OF	3	3	2	3	4	2	4	4
IF	11	14	5	10	8	8	12	11

	215	222	229	236	243	250	257	264
EPI		2		3		5		3
4				2				2
8				3				2
10				6				6
11				9				9
12				13				10
13				16				13
14				16				16
OF	2	2	2	2	2	3	6	3
IF	10	9	7			3		

	271	278	285	292	299	349
EPI		2		2		3
4				2		3
8				2		3
10				3		4
11				3		4
12				2		5
13				3		5
14				2		11
OF	6	2	3	2	3	
IF	8	7	7	5	5	

LAKE 223 Susp P (ug/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	139	145	152
EPI	3	3	3	5		2		2
4	3	3	3	5				3
8	3	2	3	7				10
10	3	4	3	8				13
11	5	5	5	8				33
12	10	30	25	8				31
13	55	69	53	9				36
14	236	157	149	17				47
OF				5	7	9	3	3
IF				2	3	10	3	4

	159	166	173	180	187	194	201	208
EPI		2		4		2		4
4				4				4
8				5				5
10				17				27
11				25				39
12				43				37
13				46				56
14				56				90
OF	4	3	3	3	3	2	< 1	2
IF	5	7	6	3	2	3	< 1	3

	215	222	229	236	243	250	257	264
EPI		2		3		3		2
4				3				2
8				5				2
10				39				8
11				45				32
12				44				34
13				57				31
14				74				42
OF	2	2	3	3	3	4	3	2
IF	2	2	4			11		

	271	278	285	292	299	349
EPI		5		4		2
4				6		2
8				4		3
10				4		4
11				4		5
12				9		7
13				3		15
14				5		73
OF	2	3	2	2	3	
IF	3	3	3 <	1 <	1	

LAKE 223 DIC (uM/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	139	145	152
EPI	75	79	109	53		36		63
4	77	95	107	49				62
8	90	122	135	64				33
10	223	324		80				93
11	333	376	346	95				187
12	371	478	351	104				256
13	783	894	912	120				267
14	1879	1992	2512	156				298
OF				55	42	41	59	70
IF				247	499	469	557	492

	159	166	173	180	187	194	201	208
EPI		26		50		33		35
4				50				35
8				60				74
10				100				136
11				235				443
12				398				475
13				437				359
14				499				390
OF	71	39	35	56	46	46	59	48
IF	355	312	554	324	344	399	390	234

	215	222	229	236	243	250	257	264
EPI		20		17		21		31
4				17				31
8				92				32
10				359				370
11				551				577
12				575				312
13				963				1379
14				1024				
OF	58	56	57	56	60	56	33	71
IF	400	348	587			301		

	271	278	285	292	299	349
EPI		54		34		
4				34		10
8				33		39
10				35		81
11				37		105
12				33		142
13				33		247
14				31		550
OF	56	72	73	43	41	
IF	525	393	304	305	354	

LAKE 223 DOC (uM/L.) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	133	145	152
EPI	630	360	360	760		450		340
4	390	330	310	450				330
8	350	320	430	590				530
10	330	310	540	330				340
11	250	300	290	320				380
12	290	400	290	260				330
13	570	270	390	290				470
14	1550	1450	2350	310				430
OF				350	430	350	310	270
IF				520	390	410	400	360

	159	166	173	180	187	194	201	208
EPI		290		280		350		320
4				530				320
8				350				290
10				390				350
11				400				270
12				320				350
13				270				390
14				510				470
OF	360	360	250	310	370	400	350	320
IF	990	1900	430	1730	1250	950	900	700

	215	222	229	236	243	250	257	264
EPI		290		390		290		390
4				530				390
8				540				350
10				280				350
11				290				390
12				340				460
13				450				700
14				470				700
OF	340	300	450	320	410	290	340	350
IF	800	610	450			1130		

	271	278	285	292	299	349
EPI		310		770		990
4				1480		760
8				1490		1040
10				1050		730
11				1590		1240
12				1320		1090
13				1240		710
14				590		820
OF	330	280	930	1040	610	
IF	650	970	380	1880	540	

LAKE 223 Susp C (ug/L.) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	133	145	152
EPI	430	420	290	510		400		270
4	390	380	330	640				280
8	330	360	410	920				910
10	340	300	400	1500				1290
11	430	540	450	820				2460
12	560	1020	820	590				2170
13	1930	2080	2290	720				1790
14	4500	5000	5250	1070				2000
OF				890	830	160	390	590
IF				350	300	930	290	590

	159	166	173	180	187	194	201	208
EPI		330		410		380		530
4				350				350
8				500				450
10				1810				2140
11				1970				2150
12				1920				1450
13				1850				1950
14				2170				2710
OF	250	520	320	530	330	370	220	280
IF	440	560	360	230	390	440	210	230

	215	222	229	236	243	250	257	264
EPI		430		560		720		310
4				730				520
8				750				490
10				2350				920
11				2260				1920
12				1700				1300
13				1750				1370
14				2170				1940
OF	330	380	570	1000	540	500	430	330
IF	180	210	290			530		

	271	278	285	292	299	349
EPI		400		980		390
4				970		320
8				1100		570
10				930		770
11				940		780
12				2490		1390
13				550		2390
14				950		3840
OF	260	290	370	430	670	
IF	300	210	290	210	200	

LAKE 223 Cl (mg/L) 1991

DEPTH(m)	DAY #							
	013	041	076	125	131	139	145	152
EPI	< .1	< .1	.2	1.0		< .1		.4
4	< .1	.3	.2	.4				.4
8	< .1	.3	.1	.6				< .1
10	< .1	.3	.3	.6				.1
11	< .1	.4	.2	.7				.1
12	< .1	.3	.3	.7				.1
13	.2	.6	.5	.8				< .1
14	.6	.6	.5	.7				< .1
OF				.6	.3	.5	< .1	.6
IF				.8	.5	.5	.4	.5

	159	166	173	180	187	194	201	208
EPI		.6		.4		.4		.8
4				.4				1.0
8				< .1				.5
10				.1				.4
11				.2				.4
12				.2				.5
13				.2				.4
14				.2				.4
OF	.6	.8	.6	.6	.8	.4	.1	1.2
IF	.2	< .1	.3	< .1	< .1	.1	.2	.2

	215	222	229	235	243	250	257	264
EPI		.4		.6		.2		.6
4				.4				.4
8				.1				.6
10				.1				.3
11				.1				.4
12				.3				.4
13				.3				.4
14				.3				.8
OF	.8	.8	.8	.2	.6	.5	< .1	.3
IF	.2	.1	.3			.3		

	271	278	285	292	299	349
EPI		.2		.2		.4
4				.3		.5
8				.2		.4
10				.4		.4
11				.2		.4
12				.4		.6
13				.4		.3
14				.8		.3
OF	.1	.4	< .1	.5	.6	
IF	.5	.4	.4	.5	.4	

LAKE 223 SO4 (mg/L) 1991

DEPTH(m)	DAY #							
	013	041	076	125	131	139	145	152
EPI	12.3	12.9	11.4	9.9		12.2		12.2
4	12.3	12.0	11.5	10.8				12.0
8	12.4	12.0	11.2	10.8				11.1
10	11.8	10.9	10.1	10.7				11.0
11	11.1	10.3	9.7	10.4				10.9
12	10.6	8.8	6.9	9.1				10.8
13	5.7	2.7	1.4	10.3				10.7
14	.8	.9	.4	10.2				10.5
OF				10.7	11.2	12.0	12.5	11.3
IF				3.3	3.1	3.3	3.4	3.2

	159	166	173	180	187	194	201	208
EPI		11.6		11.8		11.8		10.8
4				11.3				11.2
8				10.9				9.5
10				9.8				8.1
11				9.1				6.8
12				8.5				4.7
13				8.4				2.1
14				7.6				.1
OF	11.8	11.6	12.0	11.6	12.2	11.8	11.8	11.6
IF	7.5	8.7	4.9	9.4	7.9	4.7	4.2	2.4

	215	222	229	235	243	250	257	264
EPI		11.6		12.0		12.2		12.4
4				12.2				12.2
8				10.3				12.0
10				8.5				8.4
11				6.9				6.0
12				6.0				4.9
13				2.5				1.8
14				2.3				1.0
OF	11.4	11.6	11.6	11.3	12.2	11.3	12.2	12.0
IF	4.2	3.8	4.4			8.3		

	271	278	285	292	299	349
EPI		11.9		12.4		11.8
4				12.2		11.6
8				12.5		11.6
10				12.1		11.9
11				12.4		11.4
12				10.1		10.8
13				12.1		9.9
14				11.8		10.0
OF	12.0	11.6	12.6	12.1	11.8	
IF	6.3	8.8	8.9	7.7	7.0	

LAKE 223 H2S-S (mg/L) 1981

DEPTH(m) DAY #

	013	041	075	125	131	138	145	152
EPI								
4								
8		< .01	< .01	< .01				< .01
10		< .01	< .01	< .01				< .01
11		< .01	< .01	< .01				< .01
12		.02	.03	< .01				< .01
13		.09	.01	< .01				< .01
14	.02	.03	.01	< .01				< .01
OF								
IF								

	159	166	173	180	187	194	201	208
EPI								
4								
8				< .01				< .01
10				< .01				< .01
11				< .01				< .01
12				< .01				.01
13				< .01				.01
14				< .01				.01
OF								
IF								

	215	222	229	235	243	250	257	264
EPI								
4								
8				< .01				.01
10				.01				.02
11				.04				.02
12				.05				.04
13				.15				.17
14				.27				.21
OF								
IF								

	271	278	285	292	299	349
EPI						
4						
8				< .01		< .01
10				< .01		< .01
11				.02		< .01
12				.02		< .01
13				< .01		< .01
14				< .01		.03
OF						
IF						

LAKE 223 Na (mg/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	133	145	152
EPI	.97	1.03	1.15	1.17		.98		1.10
4	.97	.94	1.14	1.15				1.03
8	.96	.99	1.15	1.15				1.01
10	.93	.96	1.12	1.12				1.05
11	.89	.96	1.12	1.10				1.05
12	.91	.97	1.14	1.15				1.09
13	.94	.94	1.14	1.17				1.03
14	1.08	1.03	1.24	1.19				.93
OF				1.19	.96	.98	.93	1.01
IF				2.19	1.91	2.00	1.98	1.96

	159	166	173	180	187	194	201	208
EPI		.99		.91		1.01		1.01
4				.91				1.01
8				.91				.98
10				.91				.97
11				.93				1.01
12				.94				.99
13				.97				1.03
14				1.00				1.05
OF	1.02	.94	.83	.94	.90	.99	.95	1.02
IF	1.52	1.05	1.70	1.17	.93	.91	.95	.94

	215	222	229	235	243	250	257	264
EPI		.98		1.13		1.11		1.32
4				1.27				1.32
8				1.09				1.29
10				1.10				1.05
11				1.16				1.26
12				1.15				1.26
13				1.24				1.34
14				1.17				1.35
OF	.96	.94	1.16	1.15	1.33	1.15	1.08	1.31
IF	.84	.84	1.61			1.19		

	271	278	285	292	299	349
EPI		1.23		1.07		1.12
4				1.05		1.12
8				1.11		1.12
10				1.05		1.14
11				1.07		1.12
12				1.07		1.14
13				1.05		1.09
14				1.08		1.07
OF	1.29	1.14	1.17	1.01	1.03	
IF	1.83	1.43	1.55	1.30	1.41	

LAKE 223 K (mg/L) 1981

DEPTH(m) DAY #

	013	041	075	125	131	138	145	152
EPI	.34	.36	.27	.24		.27		.36
4	.34	.34	.27	.24				.34
8	.32	.36	.27	.23				.31
10	.32	.34	.27	.23				.31
11	.30	.34	.29	.23				.34
12	.32	.36	.31	.19				.34
13	.39	.42	.37	.26				.33
14	.52	.54	.59	.26				.39
OF				.24	.26	.29	.33	.31
IF				.40	.38	.55	.33	.29

	159	166	173	180	187	194	201	208
EPI		.26		.35		.32		.38
4				.35				.38
8				.37				.38
10				.38				.42
11				.42				.46
12				.43				.49
13				.49				.69
14				.48				.69
OF	.35	.27	.26	.37	.33	.32	.29	.38
IF	.30	.16	.25	.17	.10	.05	.03	.13

	215	222	229	235	243	250	257	264
EPI		.27		.43		.43		.29
4				.53				.29
8				.43				.27
10				.51				.31
11				.49				.42
12				.66				.51
13				.60				.60
14				.62				.51
OF	.20	.24	.39	.43	.45	.43	.24	.27
IF	< .02	.09	.19			.43		

	271	278	285	292	299	349
EPI		.27		.39		.37
4				.30		.37
8				.43		.37
10				.39		.39
11				.41		.37
12				.46		.41
13				.39		.41
14				.39		.55
OF	.27	.27	.39	.41	.41	
IF	.29	.24	.33	.31	.33	

LAKE 223 Ca (mg/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	2.68	3.04	2.79	2.97		2.96		2.87
4	2.83	2.85	2.79	2.80				2.96
8	2.68	2.79	2.79	2.74				2.69
10	2.68	2.79	2.73	2.80				2.92
11	2.57	2.79	2.66	2.74				2.87
12	2.73	2.97	3.04	2.52				2.64
13	3.09	3.22	3.41	2.69				2.78
14	3.96	4.34	4.83	2.69				2.64
OF				2.74	2.92	2.78	2.96	2.83
IF				5.26	5.79	5.67	6.38	6.15

	159	166	173	180	187	194	201	208
EPI		2.83		2.73		2.71		2.39
4				2.83				2.52
8				2.83				2.44
10				2.78				2.57
11				2.89				2.61
12				2.83				2.91
13				2.89				3.35
14				2.89				3.52
OF	2.73	2.89	2.83	2.83	2.71	2.76	2.85	2.57
IF	4.37	4.06	5.67	4.54	3.78	2.99	3.09	2.97

	215	222	229	236	243	250	257	264
EPI		2.30		2.69		2.64		2.77
4				2.69				2.94
8				2.60				2.86
10				2.51				2.81
11				2.87				3.25
12				2.87				3.47
13				3.14				3.78
14				3.46				3.60
OF	2.61	2.48	2.73	3.01	2.64	2.64	2.72	2.94
IF	2.91	2.70	4.56			3.42		

	271	278	285	292	299	349
EPI		2.86		2.97		2.88
4				2.83		2.88
8				2.92		2.96
10				2.92		2.88
11				2.88		2.83
12				3.37		2.83
13				3.06		2.92
14				3.29		2.88
OF	2.99	3.03	3.06	2.92	2.97	
IF	4.79	4.48	4.18	3.78	3.69	

LAKE 223 Mg (mg/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI	.62	.71	.69	.60		.67		.67
4	.63	.67	.69	.60				.68
8	.61	.67	.68	.59				.62
10	.61	.64	.68	.60				.66
11	.60	.65	.67	.59				.66
12	.64	.69	.71	.56				.60
13	.67	.71	.76	.59				.65
14	.73	.82	.96	.58				.61
OF				.60	.64	.62	.64	.64
IF				.92	1.05	.94	1.10	1.07

	159	166	173	180	187	194	201	208
EPI		.62		.61		.60		.58
4				.62				.59
8				.61				.57
10				.59				.58
11				.62				.59
12				.61				.61
13				.67				.82
14				.66				.83
OF	.60	.61	.53	.62	.58	.59	.62	.59
IF	.91	.93	.89	1.00	.82	.64	.67	.65

	215	222	229	236	243	250	257	264
EPI		.51		.62		.63		.69
4				.63				.66
8				.61				.70
10				.60				.69
11				.66				.72
12				.69				.78
13				.67				.72
14				.70				.81
OF	.58	.56	.65	.65	.64	.61	.66	.68
IF	.65	.59	.95			.83		

	271	278	285	292	299	349
EPI		.68		.66		.71
4				.64		.70
8				.65		.70
10				.66		.71
11				.64		.69
12				.63		.69
13				.62		.69
14				.66		.75
OF	.69	.69	.67	.64	.69	
IF	1.01	.96	1.00	.83	.87	

LAKE 223 Mn (mg/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI	.17	.17	.14	.14		.11		.14
4	.17	.17	.14	.14				.16
8	.17	.17	.14	.13				.13
10	.18	.20	.16	.10				.14
11	.18	.20	.18	.13				.13
12	.20	.25	.23	.06				.17
13	.33	.28	.27	.13				.17
14	.44	.42	.54	.16				.17
OF				.14	.14	.10	.13	.14
IF				.03	.03	.02	.01	.01

	159	166	173	180	187	194	201	208
EPI		.18		.20		.19		.22
4				.20				.20
8				.14				.16
10				.14				.09
11				.18				.18
12				.20				.45
13				.12				.16
14				.24				.27
OF	.19	.18	.18	.20	.20	.19	.20	.20
IF	.04	.02	.02	.02	.02	.02	.02	< .02

	215	222	229	236	243	250	257	264
EPI		.22		.25		.18		.24
4				.25				.24
8				.25				.22
10				.12				.22
11				.30				.40
12				.34				.29
13				.43				.35
14				.41				.39
OF	.19	.21	.21	.24	.22	.18	.20	.20
IF	< .01	.03	.01			< .01		

	271	278	285	292	299	349
EPI		.24		.25		.13
4				.25		.13
8				.27		.13
10				.24		.13
11				.25		.13
12				.12		.13
13				.19		.15
14				.21		.13
OF	.19	.20	.20	.23	.19	
IF	.07	.04	.04	.05	.01	

LAKE 223 Fe (mg/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	.17	< .03	.04	.03		.03		.05
4	.10	< .03	.04	.03				.05
8	.10	< .03	.04	.05				.05
10	.14	.07	.12	.05				.11
11	.17	.14	.16	.08				.19
12	.28	1.88	12.00	.05				.27
13	10.30	12.00	12.40	.11				.24
14	32.10	32.40	41.00	.19				.19
OF				.03	.05	.03	.05	.08
IF				.51	.32	.35	.37	.37

	159	166	173	180	187	194	201	208
EPI		< .02		.14		.06		.03
4				.05				.03
8				.05				.08
10				.16				.13
11				.37				.44
12				.73				2.19
13				.49				1.25
14				1.31				3.43
OF	.12	.07	.12	.07	< .02	.06	.06	.03
IF	.35	.28	.75	.47	.37	.43	.49	.42

	215	222	229	236	243	250	257	264
EPI		< .03		.11		.07		.21
4				.11				.18
8				.25				.21
10				.32				.45
11				.42				2.57
12				3.29				3.63
13				6.50				7.25
14				6.43				9.67
OF	.08	.03	.07	.21	.04	.11	.12	.21
IF	.52	.38	.64			.28		

	271	278	285	292	299	349
EPI		.24		.07		.12
4				.07		.08
8				.07		.12
10				.07		.15
11				.10		.23
12				.07		.38
13				.07		.42
14				.10		2.46
OF	.21	.21	.14	.10	.07	
IF	.60	.45	.35	.29	.24	

LAKE 223 Ferrous-Fe (mg/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	.01	.01	.08	< .01				< .01
4	.01	.01		< .01				< .01
8	.01	< .01	.02	< .01				< .01
10	.01	.01	.02	< .01				< .01
11	.01	.01	.03	< .01				< .01
12	.02	1.09	2.67	< .01				.01
13	9.28	8.70	5.98	< .01				.02
14	7.76	10.00	6.91	< .01				.02
OF								< .01
IF								.08

	159	166	173	180	187	194	201	208
EPI				< .01				< .01
4				< .01				< .01
8				< .01				< .01
10				< .01				< .01
11				.02				.01
12				.02				1.57
13				.21				1.67
14				1.33				1.67
OF				< .01				.01
IF				.11				.10

	215	222	229	236	243	250	257	264
EPI				< .01				< .01
4				< .01				< .01
8				< .01				< .01
10				.01				< .01
11				1.19				2.15
12				1.94				2.28
13				2.41				2.28
14				2.60				2.78
OF				.01				< .01
IF								

	271	278	285	292	299	349
EPI				< .01		< .01
4				< .01		< .01
8				< .01		< .01
10				< .01		< .01
11				< .01		< .01
12				< .01		.01
13				< .01		.01
14				< .01		6.94
OF				.03		
IF				.16		

LAKE 223 Ferric-Fe (mg/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	138	145	152
EPI	.04	.03	.68					
4	.04	.03						
8	.04	.04	.02					
10	.06	.10	.06					
11	.12	.47	.09					
12	.29	1.07	.16					
13	1.26	1.16	.40					
14	2.13	10.62	.04					
OF								
IF								

	159	166	173	180	187	194	201	208
EPI								
4								
8								
10								
11								
12								
13								
14								
OF								
IF								

	215	222	229	236	243	250	257	264
EPI								
4								
8								
10								
11								
12								
13								
14								
OF								
IF								

	271	278	285	292	299	349
EPI						
4						
8						
10						
11						
12						
13						
14						
OF						
IF						

LAKE 223 Susp Fe (ug/L) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	139	145	152
EPI			48	129		40		23
4			43	126				11
8			51	154				347
10			149	119				232
11			254	151				706
12			254	119				895
13			508	195				1061
14			877	437				1591
OF				148	197	249	54	36
IF				195	205		570	319

	159	166	173	180	187	194	201	208
EPI		44		47		61		74
4				58				58
8				98				107
10				409				906
11				387				1044
12				1513				478
13				1371				359
14				1799				428
OF	23	66	62	56	46	42	41	63
IF	69	50	583	73	70	116	109	146

	215	222	229	236	243	250	257	264
EPI		52		95		91		90
4				73				76
8				212				90
10				2028				501
11				3026				1310
12				732				1546
13				325				567
14				658				492
OF	46	43	69	73	68	62	81	68
IF	124	96	592			59		

	271	278	285	292	299	349
EPI		277		246		96
4				258		97
8				255		131
10				278		282
11				272		312
12				823		773
13				226		2289
14				330		2181
OF	70	145	110		150	
IF	193	57	121	185	47	

LAKE 223 SRSi (mg/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	.992	1.210	.912	.843		.731		.637
4	.978	1.120	.912	.837				.632
8	1.000	1.170	.971	.853				.692
10	1.490	1.790	1.370	.747				.827
11	1.390	1.390	1.560	.955				1.130
12	1.840	2.140	2.180	.614				1.400
13	2.640	3.090	2.920	1.050				1.470
14	4.990	5.350	6.970	1.170				1.490
OF				.822	.776	.717	.544	.531
IF				4.550	4.920	4.270	4.860	4.730

	159	166	173	180	187	194	201	208
EPI		.525		.444		.573		.525
4				.459				.521
8				.423				.315
10				.538				.573
11				1.100				2.250
12				1.470				1.610
13				1.100				1.800
14				1.640				2.130
OF	.562	.538	.493	.452	.517	.583	.574	.526
IF	3.120	2.180	4.950	1.170	2.750	1.750	1.710	1.900

	215	222	229	236	243	250	257	264
EPI		.455		.427		.420		.461
4				.425				.463
8				.353				.465
10				.997				.915
11				1.400				1.650
12				1.590				1.590
13				2.060				2.620
14				2.250				2.860
OF	.495	.479	.454	.442	.455	.553	.424	.467
IF	1.710	1.630	4.150			2.020		

	271	278	285	292	299	349
EPI		.561		.451		.211
4				.455		.206
8				.446		.314
10				.447		.485
11				.454		.623
12				.739		.758
13				.486		1.260
14				.507		1.190
OF	.603	.614	.535	.434	.436	
IF	4.200	3.240	3.760	3.270	3.530	

LAKE 223 Chl-a (ug/L) 1981

DEPTH(m) DAY #

	013	041	076	125	131	138	145	152
EPI	2.7	5.1	3.5	3.3		1.1		.8
4	2.2	3.0	3.5	3.4				.5
8	1.9	1.6	4.1	8.4				4.2
10	1.9	1.3	4.6	7.6				7.9
11	1.9	1.2	3.8	13.6				31.8
12	1.9	2.1	3.9	4.3				18.0
13	3.5	2.8	2.9	6.0				16.8
14	11.5	13.6	5.4	6.1				18.0
OF								
IF								

	159	166	173	180	187	194	201	208
EPI		1.1		1.9		.9		1.4
4				1.9				1.5
8				3.4				3.0
10				56.9				25.8
11				51.1				58.4
12				14.5				7.4
13				14.5				6.1
14				6.8				13.4
OF								
IF								

	215	222	229	236	243	250	257	264
EPI		2.2		1.7		3.4		1.9
4				3.1				2.7
8				2.7				3.0
10				26.4				7.0
11				40.9				41.6
12				28.5				17.5
13				8.1				11.7
14				15.1				14.2
OF								
IF								

	271	278	285	292	299	349
EPI		3.9		6.3		2.1
4				6.5		1.8
8				7.3		6.7
10				9.2		6.3
11				4.4		6.8
12				8.0		17.4
13				3.5		14.7
14				6.8		70.1
OF						
IF						

LAKE 223 Colour (abs425nm) 1981

DEPTH(m)	DAY #							
	013	041	076	125	131	139	145	152
EPI	.018	.014	.014	.020				
4	.016	.013	.009	.018				
8	.011	.017	.010	.020				
10	.015	.021	.029	.022				
11	.021	.032	.034	.024				
12	.027	.189	.165	.022				
13	.776	.852	.874	.029				
14	3.138	3.176	2.360	.037				
OF				.027				
IF				.149				

	159	166	173	180	187	194	201	208
EPI				.009				
4				.006				
8				.010				
10				.029				
11				.058				
12				.109				
13				.086				
14				.195				
OF				.017				
IF				.486				

	215	222	229	236	243	250	257	264
EPI				.014				.025
4				.009				.023
8				.021				.024
10				.047				.073
11				.060				.378
12				.318				.530
13				.575				.909
14				.611				1.206
OF				.014				.029
IF								

	271	278	285	292	299	349
EPI		.026		.095		.035
4				.096		.031
8				.097		.030
10				.081		.036
11				.083		.049
12				.082		.078
13				.076		.080
14				.087		.163
OF		.028		.069		
IF		.276		.217		

Appendix 9

1982 Water chemistry data

LAKE 223 Temp (C) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI					8.62			
4					8.14			
8					6.57			
10					5.62			
11					5.55			
12					5.35			
13					5.27			
14					5.19			
OF								
IF								

	158	165	172	179	186	193	200	207
EPI					18.81			
4					18.57			
8					9.94			
10					7.62			
11					7.24			
12					6.67			
13					6.46			
14					6.30			
OF								
IF								

	214	221	228	235	242	249	256	263
EPI	21.47				17.08			
4	21.52				17.32			
8	11.67				15.46			
10	8.55				9.25			
11	7.75				8.11			
12	7.21				7.61			
13	6.93				7.39			
14	6.81				7.30			
OF								
IF								

	270	277	284	291	298	349
EPI	13.32				6.75	
4	13.32				6.75	
8	13.15				6.73	
10	11.67				6.75	
11	8.12				6.73	
12	7.65				6.73	
13	7.52				6.74	
14	7.41				6.74	
OF						
IF						

LAKE 223 Cond (uS/cm) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI		43	44	40	40		44	
4	40	40	40		41			
8	39		39		38			
10		40	40		39			
11	38	40	41		39			
12	39	41	49		40			
13	57		47		41			
14	98	115	128		42			
OF					41	40	47	41
IF					22	24	25	23

	158	165	172	179	186	193	200	207
EPI	38	42	21	39	38	42	37	39
4	38				38			
8	37				37			
10	38				39			
11	39				39			
12	40				40			
13	40				43			
14	41				57			
OF	39							
IF	22	26	39	22	22	23	21	21

	214	221	228	235	242	249	256	263
EPI	38	39	41	40	39	40	40	43
4	37				40			
8	35				36			
10	35				41			
11	44				54			
12	54				57			
13	57				59			
14	58				63			
OF								
IF	21	21	24	22	22	23	27	26

	270	277	284	291	298	349
EPI	39	38	38	39	47	41
4	39				40	40
8	38				40	39
10	37				39	39
11	58				39	39
12	62				39	40
13	63				45	42
14	64				39	90
OF						
IF	28	26	23	21	22	

LAKE 223 pH 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI		5.44	5.75	5.41	5.14		5.00	
4	5.83	5.14	5.14		5.05			
8	5.37		5.33		5.33			
10		5.34	5.50		5.38			
11	5.63	5.53	5.65		5.40			
12	5.80	5.52	6.14		5.39			
13	6.31		6.53		5.40			
14	6.61	6.42	6.49		5.43			
OF					5.13	5.14	4.87	4.95
IF					6.10	6.23	6.19	6.20

	158	165	172	179	186	193	200	207
EPI	5.06	5.05	5.10	5.13	5.17	5.18	5.17	5.08
4	5.02				5.14			
8	5.36				5.59			
10	5.43				5.59			
11	5.52				5.62			
12	5.56				5.73			
13	5.60				5.90			
14	5.70				6.22			
OF	5.01							
IF	6.50	5.95	6.19	6.19	6.11	6.12	6.09	6.09

	214	221	228	235	242	249	256	263
EPI	5.02	5.08	5.01	5.01	5.00	5.21	5.10	5.11
4	5.11				4.99			
8	5.87				5.58			
10	5.66				5.80			
11	5.98				6.18			
12	6.28				6.27			
13	6.31				6.30			
14	6.32				6.30			
OF								
IF	6.21	6.10	6.06	6.09	6.15	6.29	6.20	6.20

	270	277	284	291	298	349
EPI	5.11	5.22	5.10	5.12	5.13	5.06
4	5.10				5.09	5.03
8	5.20				5.11	5.03
10	5.60				5.11	5.10
11	6.30				5.11	5.21
12	6.40				5.12	5.34
13	6.37				5.17	5.50
14	6.34				5.21	6.02
OF						
IF	6.19	6.18	6.08	6.16	6.17	

LAKE 223 Alkal (uEq/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	-1	-1	-1	9	-2		-38	
4	-1	-1	-1		-4			
8	-1	8	10		7			
10	6	20	27		11			
11	25	30	44		11			
12	55	64	89		16			
13	174	198	261		23			
14	103	273	573		25			
OF					-4	-6	-1	-8
IF					75	79	93	102

	158	165	172	179	186	193	200	207
EPI	13	-4	-3	-1	-5	-7	-14	-13
4	-5				-8			
8	14				15			
10	45				5			
11	44				15			
12	79				106			
13	77				183			
14	80				207			
OF	-5							
IF	95	93	93	104	85	87	87	93

	214	221	228	235	242	249	256	263
EPI	-8	-10	-12	-11	-9	-10	-11	-9
4	-8				-10			
8	20				14			
10	59				112			
11	185				361			
12	349				445			
13	413				497			
14	402				542			
OF								
IF	94	87	104	101	98	104	143	121

	270	277	284	291	298	349
EPI	-10	-5	-8	-4	-6	-5
4	-8				-7	-6
8	-4				-6	-2
10	44				-6	1
11	358				-5	24
12	496				-2	47
13	531				-1	392
14	512				-3	870
OF						
IF	123	95	76	77	82	

LAKE 223 02 (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	12.08		16.45		10.42			
4	10.83	11.95	9.74		12.43			
8	8.89	7.17	5.97		8.28			
10	7.55	4.42	2.44		6.85			
11	5.19	1.41	.82		6.22			
12	.83	.98	.12		6.04			
13	.38	.24	< .01		4.63			
14	< .01	< .01	< .01		3.42			
OF								
IF								

	158	165	172	179	186	193	200	207
EPI	9.90				8.71			
4	9.94				8.70			
8	7.87				10.02			
10	4.60				2.59			
11	2.54				.46			
12	1.17				.06			
13	.36				< .01			
14	.14				< .01			
OF								
IF								

	214	221	228	235	242	249	256	263
EPI	8.11				8.97			
4	8.12				8.96			
8	11.09				10.05			
10	3.02				< .01			
11	< .01				< .01			
12	< .01				< .01			
13	< .01				< .01			
14	< .01				.80			
OF								
IF								

	270	277	284	291	298	349
EPI	9.16				10.17	12.31
4	9.02				10.23	12.29
8	8.79				10.11	10.10
10	3.93				10.09	8.35
11	< .01				10.08	6.65
12	< .01				9.90	3.19
13	< .01				9.90	.38
14	< .01				10.06	< .01
OF						
IF						

LAKE 223 NH3-N (ug/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	54	16	37	78	54		< 1	
4	11	36	46		69			
8	82	132	174		76			
10	159	212	293		122			
11	328	350	372		135			
12	324	297	520		130			
13	755	726	1213		91			
14	2230	3015	4653		256			
OF					59	21	< 1	< 1
IF					< 1	< 1	< 1	< 1

	158	165	172	179	186	193	200	207
EPI	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1
4	< 1				< 1			
8	< 1				< 1			
10	32				99			
11	131				215			
12	210				406			
13	217				533			
14	334				737			
OF	< 1							
IF	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

	214	221	228	235	242	249	256	263
EPI	4	2	2	1	11	11	16	14
4	2				12			
8	1				4			
10	21				41			
11	356				562			
12	842				850			
13	1237				1083			
14	1342				1579			
OF								
IF	4	< 1	2	3	20	21	27	21

	270	277	284	291	298	349
EPI	29	14	36	53	41	35
4	12				54	56
8	18				59	113
10	50				72	164
11	710				50	189
12	1110					335
13	1392				53	777
14	1561				45	1399
OF						
IF	19	18	14	25	25	

LAKE 223 NO3-N (ug/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	< 1	< 1	4	15	18		13	
4	< 1	< 1	4		27			
8	< 1	3	8		19			
10	< 1	2	4		15			
11	< 1	< 1	< 1		15			
12	77	50	< 1		21			
13	4	23	< 1		54			
14	< 1	< 1	< 1		12			
OF					18	13	10	< 1
IF					22	12	2	10

	158	165	172	179	186	193	200	207
EPI	< 1	< 1	< 1	< 1	< 1	< 1		< 1
4	< 1				< 1			
8	< 1				< 1			
10	6				< 1			
11	8				< 1			
12	6				< 1			
13	4				< 1			
14	< 1				23			
OF	< 1							
IF	5	< 1	< 1	< 1	< 1	2	< 1	1

	214	221	228	235	242	249	256	263
EPI	< 1	< 1	< 1	< 1	2	1	1	< 1
4	4				< 1			
8	< 1				< 1			
10	7				3			
11	1				1			
12	< 1				2			
13	8				2			
14	1				3			
OF								
IF	7	1	< 1	< 1	4	5	7	5

	270	277	284	291	298	349
EPI	3	< 1	2	< 1	1	2
4	1				2	2
8	2				2	3
10	1				4	4
11	3				3	150
12	5					
13	4				7	
14	10				3	
OF						
IF	4	19	14	7	11	

LAKE 223 TDN (ug/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	283	349	339	320	295		317	
4	234	270	367		291			
8	301	369	502		303			
10	381	486	638		343			
11	484	640	746		349			
12	636	624	947		377			
13	1117	1258	1962		358			
14	2553	3743	5543		510			
OF					303	262	307	251
IF					240	218	312	266

	158	165	172	179	186	193	200	207
EPI	174	279	217	235	151	172		199
4	156				194			
8	167				161			
10	313				290			
11	421				417			
12	491				554			
13	484				668			
14	623				894			
OF	197							
IF	284	282	243	259	242	180	206	214

	214	221	228	235	242	249	256	263
EPI	208	171	258	170	145	192	223	188
4	217				161			
8	260				174			
10	396				281			
11	753				892			
12	1332				1151			
13	1522				1516			
14	1736				1962			
OF								
IF	355	218	258	239	223	212	255	197

	270	277	284	291	298	349
EPI	189	212	231	273	284	224
4	204				267	271
8	217				288	297
10	254				277	350
11	997				270	485
12	1470					566
13	1760				281	1942
14	1911				258	2055
OF						
IF	262	307	300	220	219	

LAKE 223 Susp N (ug/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	59	2	19	34	22		15	
4	57	23	19		38			
8	109	12	24		19			
10	70	48	32		41			
11	105	71	74		28			
12	211	120	90		98			
13	863	240	423		51			
14	752	450	322		363			
OF						12	18	95
IF					6	40	37	56

	158	165	172	179	186	193	200	207
EPI	47	72	22	37	6	29	21	25
4	61				6			
8	143				14			
10	123				25			
11	166				102			
12	175				34			
13	175				37			
14	169				62			
OF	102							
IF	53	42	25	68	5	29	12	19

	214	221	228	235	242	249	256	263
EPI	39	29	33	44	60	50	44	60
4	19				67			
8	56				47			
10	212				184			
11	137				213			
12	205				241			
13	223				290			
14	308				551			
OF								
IF	15	21	48	23	17	30	21	18

	270	277	284	291	298	349
EPI	46	57	60	62	108	46
4	63				104	41
8	72				93	23
10	74				97	44
11	174				79	64
12	148				90	77
13	244				87	538
14	225				114	79
OF						
IF	19	13	28	18	32	

LAKE 223 TDP (ug/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	3	2	3	4	3		2	
4	3	1	2		4			
8	3	2	2		3			
10	3	2	2		3			
11	4	3	3		3			
12	4	3	4		3			
13	7	6	11		4			
14	11	12	18		4			
OF					3	3	2	4
IF					3	3	4	4

	158	165	172	179	186	193	200	207
EPI	4	2	3	6	6	2	2	3
4	3				2			
8	4				3			
10	5				6			
11	6				7			
12	6				7			
13	4				9			
14	5				11			
OF	3							
IF	4	4	4	4	5	3	3	5

	214	221	228	235	242	249	256	263
EPI	2	1	2	3	2	2	4	3
4	2				2			
8	3				3			
10	6				6			
11	9				8			
12	13				12			
13	11				17			
14	12				30			
OF								
IF	4	6	5	6	4	4	6	5

	270	277	284	291	298	349
EPI	3	4	5	4	4	3
4	3				4	3
8	4				4	3
10	5				4	4
11	10				3	4
12	14				3	6
13	19				4	6
14	25				4	11
OF						
IF	6	5	6	5	3	

LAKE 223 Susp P (ug/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	2	2	2	4	3		3	
4	2	2	2		4			
8	2	3	3		4			
10	3	5	6		4			
11	6	7	12		5			
12	17	10	17		5			
13	76	37	43		9			
14	81	53	50		85			
OF					3	3	3	9
IF					5	2	2	3

	158	165	172	179	186	193	200	207
EPI	4	2	2	3	3	2	2	2
4	7				3			
8	11				4			
10	14				24			
11	17				75			
12	22				31			
13	19				32			
14	26				46			
OF	3							
IF	3	3	2	3	4	3	2	5

	214	221	228	235	242	249	256	263
EPI	6	2	2	5	5	3	3	4
4	3				4			
8	4				4			
10	13				27			
11	22				32			
12	33				37			
13	40				47			
14	51				71			
OF								
IF	3	2	2	4	3	3	5	3

	270	277	284	291	298	349
EPI	5	5	6	7	5	4
4	4				5	4
8	7				7	4
10	9				5	5
11	33				5	8
12	28				6	11
13	38				6	79
14	37				7	140
OF						
IF	3	3	2	3	2	

LAKE 223 DIC (uM/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI		34	46	109			34	
4	54	57	76		85			
8	121		158		147			
10		288	281		205			
11	274	335	335		213			
12	386	373	421		208			
13	626		1030		263			
14	1294	3882	1776		297			
OF					58	82	34	56
IF					172	130	186	202

	158	165	172	179	186	193	200	207
EPI	69	23	22	23	23	21	17	17
4	325				25			
8	181				102			
10	294				342			
11	318				415			
12	361				500			
13	425				537			
14	454				685			
OF	77							
IF	217	177	178	178	192	208	203	210

	214	221	228	235	242	249	256	263
EPI	13	11	12	16	15	21	19	15
4	14				15			
8	70				89			
10	329				464			
11	512				700			
12	639				799			
13	738				923			
14	760				1018			
OF								
IF	219	206	233	228	103	204	286	268

	270	277	284	291	298	349
EPI	34	48	49	54	39	20
4	36				43	23
8	57				45	100
10	273				47	130
11	875				50	217
12	852				47	292
13	973				52	361
14	1009				49	1102
OF						
IF	288	215	176	154	147	

LAKE 223 DOC (uM/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	690	450	720	820	1320		370	
4	970	820	350		1130			
8	930	370	700		450			
10	460	620	410		390			
11	290	330	1250		580			
12	600	530	850		990			
13	380	560	510		240			
14	750	720	580		400			
OF					440		290	630
IF					360		630	850

	158	165	172	179	186	193	200	207
EPI	460	460	290	500	1120	520	450	460
4	550				370			
8	370				360			
10	600				790			
11	340				890			
12	490				610			
13	890				300			
14	530				440			
OF	400							
IF	860	550	690	530	980	430	480	510

	214	221	228	235	242	249	256	263
EPI	390	290	440	330	420	310	350	280
4	1160				910			
8	600				490			
10	490				750			
11	850				460			
12	800				430			
13	1100				1060			
14	590				480			
OF								
IF	840	480	400	350	550	370	710	410

	270	277	284	291	298	349
EPI	280	380	340	400	320	580
4	300				330	440
8	310				360	370
10	310				370	380
11	330				390	290
12	530				310	350
13	300				370	320
14	380				360	560
OF						
IF	650	970	620	500	300	

LAKE 223 Susp C (ug/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	390	230	290	470	470		320	
4	420	270	210		500			
8	550	300	300		450			
10	780	430	370		470			
11	950	880	650		470			
12	2160	950	770		660			
13 >	2100	1370	2210		600			
14 >	2100	2810	2560		3180			
OF					320	380	340	620
IF					360	300	260	330

	158	165	172	179	186	193	200	207
EPI	660	490	470	310	460	350	570	490
4	630				470			
8	1050				800			
10	920				1430			
11	1080				4370			
12	1010				2100			
13	1240				2120			
14	1190				2420			
OF	460							
IF	320	320	530	280	410	250	280	310

	214	221	228	235	242	249	256	263
EPI	600	480	500	580	640	570	560	660
4	480				730			
8	760				630			
10	2200				1480			
11	1170				1650			
12	1490				1630			
13	1680				1990			
14	2140				3240			
OF								
IF	280	340	530	330	340	390	350	310

	270	277	284	291	298	349
EPI	660	590	560	520	970	480
4	660				820	430
8	850				780	380
10	750				820	390
11	1510				710	700
12	1180				820	730
13	1970				780	4420
14	1640				1000	940
OF						
IF	340	200	300	230	290	

LAKE 223 Cl (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	.8	1.2	4.0	.2	.4		.1	
4	.6	.8	.2		.4			
8	.6	.8	.2		.4			
10	.3	.6	< .1		.5			
11	.6	.3	.1		.5			
12	.5	.3	.1		.4			
13	.5	.5	.4		.5			
14		.4	.5		.6			
OF					.5	.4	< .1	.1
IF					.4	.2	.3	.4

	158	165	172	179	186	193	200	207
EPI	.1	.2	.1	< .1	.3	.1	1.8	.1
4	.1				1.4			
8	.2				< .1			
10	.2				.3			
11	.2				.3			
12	.2				.3			
13	.2				< .1			
14	.1				.4			
OF	.2							
IF	.4	.4	.3	.2	.4	.3	.2	.3

	214	221	228	235	242	249	256	263
EPI	.4	.6	1.4	.6	.4	.8	.8	1.0
4	.9				.4			
8	.6				.2			
10	.1				.3			
11	.5				.3			
12	.4				.3			
13	.5				.3			
14	.5				.3			
OF								
IF	2.4	.3	.3	.3	.2	.3	1.1	.3

	270	277	284	291	298	349
EPI	< .1	< .1	.1	< .1	.4	.2
4	.1				.4	.6
8	.1				.4	.4
10	.9				.6	.4
11	1.7				.4	.4
12	.5				.6	.3
13	.5				.4	.6
14	.5				.8	1.1
OF						
IF	.4	.4	.4	.5	.4	

LAKE 223 SO4 (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	13.0	13.8	16.0	11.4	11.4		11.9	
4	12.2	12.4	12.6		11.4			
8	12.4	11.8	12.2		11.0			
10	11.7	11.8	12.0		11.1			
11	10.8	10.7	11.2		11.1			
12	10.5	10.7	9.4		11.2			
13	8.3	7.0	4.4		11.2			
14		1.1	.8		11.3			
OF					11.3	11.6	12.0	12.1
IF					3.4	3.7	3.8	3.4

	158	165	172	179	186	193	200	207
EPI	12.0	12.2	12.1	12.8	11.8	11.9	11.4	11.8
4	12.1				10.8			
8	11.7				12.1			
10	11.6				10.3			
11	11.8				10.0			
12	11.2				9.2			
13	11.0				9.4			
14	10.8				7.3			
OF	12.3							
IF	3.7	3.4	3.3	3.7	3.6	3.0	3.4	3.1

	214	221	228	235	242	249	256	263
EPI	12.2	11.2	12.0	11.6	11.6	11.8	12.0	11.2
4	12.0				12.0			
8	11.2				11.0			
10	10.1				8.8			
11	8.5				4.8			
12	6.1				3.2			
13	4.8				2.3			
14	4.9				1.9			
OF								
IF	3.0	3.3	3.2	3.2	3.2	3.2	3.0	3.5

	270	277	284	291	298	349
EPI	12.1	12.0	12.1	12.1	11.8	12.4
4	12.0				11.8	13.2
8	12.0				11.6	12.2
10	10.5				12.0	12.2
11	3.7				11.8	13.0
12	1.3				14.1	11.0
13	1.1				11.8	11.7
14	1.3				12.0	7.2
OF						
IF	3.9	4.5	4.3	3.6	3.4	

LAKE 223 H2S-S (mg/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI								
4								
8	.01	.01	.01		.02			
10	< .01	.01	< .01		.03			
11	< .01	< .01	< .01		.02			
12	.01	< .01	.27		.02			
13	.12	.41	.31		.03			
14	.03	.05	.13		.05			
OF								
IF								

	158	165	172	179	186	193	200	207
EPI								
4								
8	< .01				< .01			
10	< .01				< .01			
11	< .01				.01			
12	< .01				< .01			
13	< .01				.13			
14	< .01				.34			
OF								
IF								

	214	221	228	235	242	249	256	263
EPI								
4								
8	< .01				< .01			
10	< .01				.02			
11	.10				1.12			
12	.55				1.07			
13	.63				1.19			
14	.33				1.23			
OF								
IF								

	270	277	284	291	298	349
EPI						< .01
4						< .01
8	< .01				< .01	< .01
10	< .01				< .01	< .01
11	.64				< .01	< .01
12	.73				< .01	< .01
13	1.09				< .01	< .01
14	.79				< .01	.15
OF						
IF						

LAKE 223 Na (mg/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	1.15	1.24	1.22	1.06	1.03			
4	1.09	1.17	1.17		1.04			
8	1.06	1.18	1.18		1.12			
10	1.07	1.17	1.28		1.03			
11	1.07	1.13	1.20		1.13			
12	1.06	1.13	1.19		1.07			
13	1.07	1.11	1.23		1.12			
14	1.07	1.13	1.31		1.12			
OF					1.02	1.02	1.05	.99
IF					.79	.83	.86	.85

	158	165	172	179	186	193	200	207
EPI	1.13	1.02	1.19	1.07	1.01	.96	1.09	1.13
4	1.15				1.02			
8	1.12				1.09			
10	1.15				1.02			
11	1.12				1.02			
12	1.35				1.02			
13	1.23				1.08			
14	1.15				1.08			
OF	1.18							
IF	.90	.74	.75	.77	.75	.71	.92	.78

	214	221	228	235	242	249	256	263
EPI	1.15	1.15	1.06	.93	1.03	1.01	1.05	1.00
4	1.12				1.04			
8	1.13				1.01			
10	1.24				1.03			
11	1.16				1.05			
12	1.20				1.01			
13	1.16				1.05			
14	1.20				1.11			
OF								
IF	.90	.81	.86	.71	.79	.82	.94	.90

	270	277	284	291	298	349
EPI	.45	1.13	1.10	1.20	1.10	.98
4	.40				1.11	1.01
8	.46				1.08	.98
10	.38				1.07	1.05
11	.39				1.10	.95
12	.38				1.13	.96
13	.40				1.07	1.15
14	.40				1.10	.88
OF						
IF	.27	1.01	.92	.97	.89	

LAKE 223 K (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	.41	.32	.34	.46	.42			
4	.41	.32	.32		.42			
8	.39	.34	.32		.42			
10	.43	.32	.34		.41			
11	.39	.34	.34		.42			
12	.43	.32	.40		.44			
13	.47	.46	.48		.52			
14	.57	.55	.65		.46			
OF					.41	.41	.32	.34
IF					.41	.46	.36	.32

	158	165	172	179	186	193	200	207
EPI	.34	.32	.32	.34	.32	.32	.38	.34
4	.34				.34			
8	.34				.36			
10	.41				.44			
11	.40				.44			
12	.41				.50			
13	.45				.48			
14	.43				.60			
OF	.34							
IF	.30	.24	.23	.23	.28	.28	.30	.28

	214	221	228	235	242	249	256	263
EPI	.32	.32	.31	.33	.34	.38	.36	.34
4	.36				.36			
8	.36				.36			
10	.40				.51			
11	.42				.57			
12	.44				.53			
13	.48				.57			
14	.48				.59			
OF								
IF	.30	.28	.31	.35	.36	.36	.60	.43

	270	277	284	291	298	349
EPI	.32	.33	.29	.29	.31	.28
4	.32				.29	.33
8	.32				.29	.30
10	.42				.29	.39
11	.51				.29	.30
12	.55				.35	.33
13	.59				.27	.49
14	.59				.31	.41
OF						
IF	.51	.54	.50	.33	.33	

LAKE 223 Ca (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	2.96	3.06	3.06	2.95	2.91			
4	2.79	2.94	2.86		2.83			
8	2.71	2.90	2.86		2.99			
10	2.75	2.90	2.90		2.99			
11	2.71	2.90	2.86		2.72			
12	2.79	2.98	2.98		3.03			
13	3.00	3.26	3.18		3.19			
14	3.59	4.07	4.15		2.75			
OF					2.83	2.95	2.93	2.89
IF					1.73	1.77	2.11	2.25

	158	165	172	179	186	193	200	207
EPI	2.93	2.84	2.98	2.89	2.81	2.77	2.85	2.89
4	2.89				2.81			
8	3.02				2.89			
10	2.79				3.06			
11	3.21				3.10			
12	2.84				3.01			
13	2.94				3.22			
14	2.84				3.62			
OF	2.98							
IF	2.25	2.06	1.97	2.11	1.97	1.85	2.05	2.03

	214	221	228	235	242	249	256	263
EPI	2.76	2.85	2.88	2.71	2.65	2.65	2.79	2.83
4	5.06				2.65			
8	3.21				2.79			
10	3.26				3.16			
11	3.48				3.25			
12	3.44				3.16			
13	3.53				3.21			
14	3.26				3.25			
OF								
IF	1.99	1.90	2.12	2.08	1.81	1.91	2.37	2.23

	270	277	284	291	298	349
EPI	2.79	2.82	2.82	2.78	2.96	3.12
4	2.74				2.96	3.17
8	2.83				2.92	3.01
10	3.16				2.96	2.90
11	3.35				2.78	3.44
12	3.25				3.56	3.01
13	3.35				2.92	4.48
14	3.30				3.06	4.70
OF						
IF	2.32	2.41	2.22	1.81	1.90	

LAKE 223 Mg (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	.75	.78	.78	.61	.62			
4	.71	.72	.70		.62			
8	.70	.72	.72		.62			
10	.71	.72	.73		.70			
11	.72	.72	.71		.59			
12	.72	.76	.72		.65			
13	.70	.78	.76		.76			
14	.81	.89	.88		.67			
OF					.62	.72	.67	.61
IF					.44	.53	.54	.52

	158	165	172	179	186	193	200	207
EPI	.64	.64	.65	.67	.57	.60	.62	.64
4	.61				.59			
8	.67				.58			
10	.65				.63			
11	.69				.63			
12	.62				.63			
13	.65				.66			
14	.66				.78			
OF	.63							
IF	.53	.50	.49	.51	.45	.45	.48	.52

	214	221	228	235	242	249	256	263
EPI	.68	.65	.66	.62	.58	.58	.59	.62
4	1.37				.59			
8	.68				.61			
10	.67				.64			
11	.78				.66			
12	.78				.65			
13	.76				.64			
14	.72				.68			
OF								
IF	.51	.48	.53	.54	.47	.49	.60	.55

	270	277	284	291	298	349
EPI	.60	.64	.64	.64	.68	.57
4	.60				.66	.62
8	.59				.72	.66
10	.64				.67	.61
11	.69				.65	.62
12	.66				.72	.65
13	.66				.65	.73
14	.66				.65	.79
OF						
IF	.57	.60	.55	.48	.50	

LAKE 223 Mn (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	.11	.24	.24	.20	.20			
4	.11	.22	22		.20			
8	.11	.22	.23		.20			
10	.11	.19	.23		.20			
11	.10	.21	.23		.19			
12	.08	.16	.24		.20			
13	.18	.30	.28		.12			
14	.28	.48	.46		.23			
OF					.19	.19	.01	.10
IF					.01	.03	.03	.04

	158	165	172	179	186	193	200	207
EPI	1.36	6.24	.01	.15	.19	.17	.20	.20
4	.07				.19			
8	.07				.20			
10	.06				.20			
11	.04				.23			
12	.06				.23			
13	.40				.23			
14	.07				.25			
OF	.04							
IF	.70	< .01	< .01	< .01	.03	.02	.03	.03

	214	221	228	235	242	249	256	263
EPI	.17	.17	.19	.19	.21	.18	.19	.21
4	.18				.21			
8	.20				.24			
10	.20				.44			
11	.35				.55			
12	.29				.31			
13	.27				.28			
14	.29				.31			
OF								
IF	.01	< .01	.01	.01	.03	.01	.03	.03

	270	277	284	291	298	349
EPI	.21	.19	.18	.19	.19	.16
4	.21				.19	.20
8	.19				.19	.18
10	.24				.19	.18
11	.34				.18	.04
12	.31				.21	.18
13	.31				.18	.12
14	.34				.15	.24
OF						
IF	.01	.01	< .01	< .01	< .01	

LAKE 223 Fe (mg/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	.04	.09	.05	.11	.11			
4	.04	.07	.02		.11			
8	.04	.09	.07		.11			
10	.08	.14	.09		.15			
11	.15	.25	.16		.15			
12	.27	.25	3.00		.15			
13	3.19	4.39	9.48		.15			
14	13.08	17.10	19.20		.75			
OF					.15	.11	.06	.03
IF					.11	.11	.06	.06

	158	165	172	179	186	193	200	207
EPI	.32	.03	.03	.03	.04	.04	.04	.03
4	.32				.04			
8	.03				.04			
10	< .03				.08			
11	.03				.08			
12	.06				.77			
13	.13				2.15			
14	.80				3.42			
OF	.03							
IF	.10	.03	.03	.06	.12	.12	.12	.09

	214	221	228	235	242	249	256	263
EPI	.06	.09	.07	< .03	.04	.08	.11	.11
4	.05				.04			
8	.12				.08			
10	.33				1.63			
11	2.34				4.47			
12	4.63				5.30			
13	4.98				5.53			
14	4.21				5.76			
OF								
IF	.12	.15	.13	.17	.15	.19	.34	.30

	270	277	284	291	298	349
EPI	.11	.18	.21	.27	.21	.20
4	.11				.21	.20
8	.11				.21	.25
10	.45				.21	.25
11	5.38				.21	.20
12	5.91				.18	.65
13	5.38				.18	.40
14	5.68				.18	5.50
OF						
IF	.27	.24	.15	.09	.09	

LAKE 223 Ferrous-Fe (mg/L) 1982

DEPTH(m)	DAY #							
	013	041	069	124	130	137	144	151
EPI	< .01		.01		.02			
4	< .01	.03			.04			
8	< .01	.01			.08			
10	< .01	.04	< .01		.09			
11	< .01	.05	.01		.07			
12	.01	.09	2.72		.02			
13	4.22	7.22	7.21		.04			
14	8.95	9.03	7.15		.24			
OF								
IF								

	158	165	172	179	186	193	200	207
EPI	< .01				.13			
4	< .01				< .01			
8	< .01				< .01			
10	< .01				.06			
11	.01				< .01			
12	.01				1.10			
13	.01				2.68			
14	.09				12.51			
OF	.01							
IF	.06				< .01			

	214	221	228	235	242	249	256	263
EPI	< .01				< .01			
4	< .01				< .01			
8	< .01				< .01			
10	< .01				1.63			
11	2.81				5.10			
12	5.19				5.26			
13	5.74				5.29			
14	5.62				5.66			
OF								
IF	< .01				.11			

	270	277	284	291	298	349
EPI	< .01				< .01	< .01
4	< .01				< .01	< .01
8	< .01				< .01	< .01
10	.09				< .01	< .01
11	6.12				< .01	.01
12	5.97				< .01	.01
13	6.98				< .01	.61
14	6.85				< .01	9.02
OF						
IF					< .01	

LAKE 223 Susp Fe (ug/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	116	88	77		73			
4	118	95	93		80			
8	162	162	224		117			
10	234	335	521		215			
11	506	1008	907		261			
12	1305	961	170		233			
13	735	134	255		309			
14	685	129	407		893			
OF					61			
IF					27			

	158	165	172	179	186	193	200	207
EPI	52				30			
4	85				41			
8	135				55			
10	264				236			
11	438				740			
12	649				1479			
13	880				713			
14	972				294			
OF	40							
IF	32				22			

	214	221	228	235	242	249	256	263
EPI	58				98			
4	56				91			
8	88				166			
10	304				733			
11	305				145			
12	137				124			
13	158				415			
14	251				188			
OF								
IF	38				45			

	270	277	284	291	298	349
EPI	163				207	189
4	180				196	134
8	248				178	233
10	816				232	301
11	129				256	298
12	107				199	894
13	1047				236	6470
14	200				268	455
OF						
IF	81				20	

LAKE 223 SRSi (mg/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	.211	.228	.220	.494	.476		.427	
4	.208	.217	.262		.483			
8	.404	.485	.591		.503			
10	.586	.696	.834		.597			
11	.801	1.070	1.080		.615			
12	1.090	1.080	1.310		.627			
13	1.560	1.750	2.040		.569			
14	2.980	4.030	5.270		.798			
OF					.472	.393	.404	.408
IF					.314	.289	.330	.380

	158	165	172	179	186	193	200	207
EPI	.393	.369	.343	.315	.340	.378	.356	.327
4	.395				.349			
8	.522				.215			
10	.665				.312			
11	.758				.288			
12	.842				.678			
13	.898				.745			
14	.994				1.200			
OF	.374							
IF	.365	.299	.213	.214	.537	.275	.287	.290

	214	221	228	235	242	249	256	263
EPI	.284	.225	.190	.141	.095	.061	.047	.045
4	.286				.096			
8	.047				.034			
10	.017				.141			
11	.364				.647			
12	.795				.886			
13	.972				1.130			
14	1.090				1.400			
OF								
IF	.305	.284	.312	.327	.374	.423	.684	.858

	270	277	284	291	298	349
EPI	.057	.088	.147	.212	.208	.158
4	.059				.209	.152
8	.079				.210	.323
10	.197				.215	.415
11	.781				.216	.395
12	1.120				.738	.569
13	1.290				.228	.997
14	1.460				.244	1.550
OF						
IF	1.040	.995	.777	.427	.400	

LAKE 223 Chl-a (ug/L) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	1.8	1.0	.9	1.2	1.7		.7	
4	1.1	.6	.5		2.3			
8	.9	.9	.7		2.7			
10	1.8	2.0	.9		1.9			
11	4.1	2.3	1.4		2.4			
12	19.7	4.3	2.0		1.9			
13	25.1	3.2	2.4		3.2			
14	19.3	3.9	4.5		82.5			
OF								
IF								

	158	165	172	179	186	193	200	207
EPI	1.1	.8	.9	.1	2.8	1.7	2.0	1.7
4	1.3				2.5			
8	5.4				5.5			
10	6.5				18.7			
11	6.9				60.3			
12	8.9				10.4			
13	6.5				10.9			
14	7.3				99.0			
OF								
IF								

	214	221	228	235	242	249	256	263
EPI	3.4	4.9	2.2	10.4	11.4	6.2	11.2	6.9
4	3.0				8.1			
8	19.5				7.2			
10	69.1				11.9			
11	13.0				11.8			
12	11.5				12.2			
13	8.7				12.5			
14	14.3				11.7			
OF								
IF								

	270	277	284	291	298	349
EPI	5.4	8.8	9.3	8.8	6.9	13.7
4	5.4				6.6	11.5
8	7.6				6.8	6.0
10	5.1				7.5	7.8
11	14.9				7.5	7.2
12	7.7				6.8	7.1
13	11.9				7.7	41.4
14	10.5				8.3	28.5
OF						
IF						

LAKE 223 Colour (abs425nm) 1982

DEPTH(m) DAY #

	013	041	069	124	130	137	144	151
EPI	.047	.051	.036		.023			
4	.044	.040	.038		.027			
8	.054	.061	.065		.026			
10	.078	.107	.146		.024			
11	.140	.242	.231		.026			
12	.338	.276	.111		.023			
13	.377	.307	.512		.027			
14	.711	.984	.714		.074			
OF								
IF								

	158	165	172	179	186	193	200	207
EPI	.018				.017			
4	.019				.014			
8	.022				.016			
10	.021				.022			
11	.021				.034			
12	.024				.111			
13	.033				.256			
14	.061				.168			
OF	.020							
IF	.147							

	214	221	228	235	242	249	256	263
EPI	.015				.024			
4	.015				.021			
8	.034				.030			
10	.075				.184			
11	.100				.329			
12	.273				.590			
13	.310				.494			
14	.272				.490			
OF								
IF	.093				.078			

	270	277	284	291	298	349
EPI	.038				.048	.030
4	.030				.051	.032
8	.041				.052	.031
10	.091				.046	.034
11	.381				.051	.029
12	.616				.045	.091
13	.545				.047	.061
14	.511				.050	.249
OF						
IF					.068	